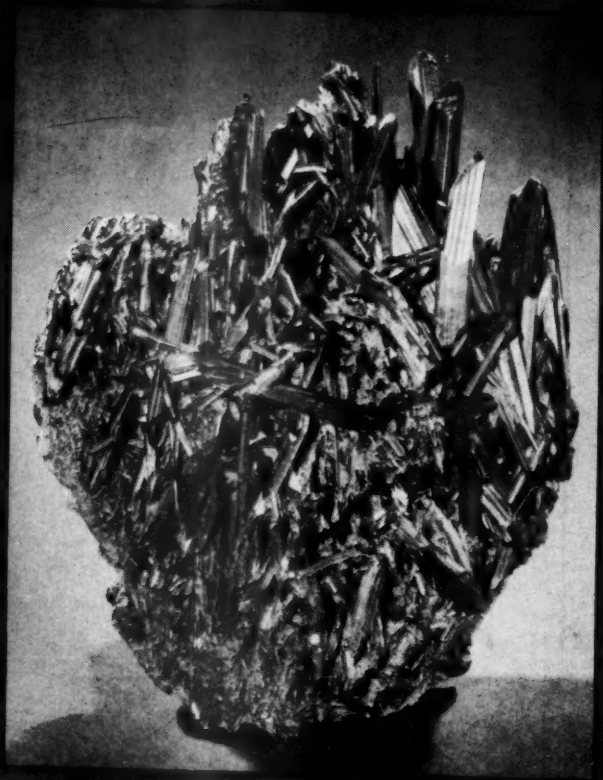
ROCKS & MINERALS



Courtesy

...ONITE, Idaho...
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52nd LIST OF FINE MINERALS

TARBUTTITE, N. Rhodesia. Finely xld. mass. 3x1	$ 5.00
RUTILE, Graves Mt., Ga. Bright slightly imperfect xl. 2x1½x1½	7.50
AZURITE, Laurium, Greece. Minutely xld. on matrix. 3½x2½	3.50
HEMATITE, Elba. Well xld. mass w. iridescent surface. 3x1¾x1½	3.00
WAVELLITE, Filleigh, Devonshire. (Type loclatiy). Radiated on rock. 2x2	2.00
SCORODITE & PHARMACOSIDERITE, Cornwall. Micro. xld. in rock. 2x1¾	3.50
ERYTHRITE, Saxony. Dark red radiating xls. on matrix. 2½x1½	3.50
MARCASITE, Schemnitz. Stalactite composed of stout xls. 3x1	2.50
COPPER, Georgetown, N. M. Pseudo. after xld. AZURITE ball, clean. 1¼"	1.50
ZIRCON, Miask, Urals ⅝" bright xl. in rock. 2x1½	3.50
ANDRADITE, Shimo-hogi, Japan. Brownish-green xls. on mass. 2½x2½	4.00
NICHOLSONITE (Zincian Aragonite), Tsumeb. Well xld. on matrix. 4x3x1½	4.00
ARSENOPYRITE, Liskeard, Cornwall. Xld. mass. 3x2x2	3.00
PARISITE, Muzo, Colombia. Minute xls. in Calcite on rock. 1½x¾"	2.00
COVELLITE, Sardinia. Xld. mass with some Pyrite. 3½x2x2	12.50
HEMIMORPHITE (CALAMINE), Cumberland. Bright blue mammillary mass. 3x2½	5.00
CABRERITE, Laurium, Greece. Micro. xld. on xls. of Calcite in rock. 3x2	7.50
WILLEMITE, Mexico. Mass of micro. xls. colored dark red by Hematite. 3x2½x1½	3.50
ILVAITE, Elba. Group of large xls., dull surface. 3x2x2	5.00
CHALCOCITE, Bristol, Conn. Excellent xls. on mass w. Calcite xls. 3x1½	5.00
CINNABAR, Mt. Amiata, Tuscany, Italy. Xlline. mass. 3x2 (12 oz.)	3.50
BOURNONITE, Hungary. Good xls. w. minutely xld. iridescent Pyrite. 3x1½	5.00
STIBNITE, Romania. Mass of interlacing radiating acicular xls. with brilliant iridescent surface. 3x2½x1½	6.00
TENORITE, Vesuvius. Micro. xld. in lava. 2x1¼	2.50
RHODOCHROSITE, Herdorf, Germany. Xld. pink aggregates in matrix. 3½x2	3.50
PHOSGENITE, Sardinia. Good xls. in granular Galena. 1½x1½	7.50
DIOPSIDE, Madagascar. Dark green opaque xl. 3½x2x1½	3.50
ANDRADITE v. JELLETITE, Switzerland. Nodular xld. masses on rock. 2x1½	3.00
MOLYBDENITE, New South Wales. Thick xl. plate. 3x2	2.50
SMITHSONITE, Tsumeb. Apple-green xld. mass., very fine. 3x3x½"	10.00
SMITHSONITE, Good white scalenohedral xls. on ore. 3x2x1½	4.00
HEMATITE, Brazil. Very good xld. "Ironrose." 2x1¼x½"	3.00
CHALCOPHYLLITE, Cornwall. Xld. on rock. 3x2. A rare Cornish mineral	10.00
LEAD, Langban. Masses in ore. 2x1½	3.00
ADAMITE, Laurium, Greece. Green xld. spherical aggregates on two sides of matrix. 3x2x1. Very good old-timer.	7.50
FLUORITE, Cumberland. Large twin lilac xl. showing phantoms which are very fine under LW fluorescence. 2½x2x2	4.00
ESSONITE, Ala. Italy. Small xls. densely coating rock. 3x2	6.00
ORTHOCLASE, Striegau. Group of sharp xls. coated w. STRIGOVITE. 4x2½	4.00
STANNITE, Tasmania. Massive with Pyrite & Quartz. 2½x1½x1½	3.00
BISMUTHINITE, Cornwall. Stout capillary xls. in ore. 2½x1½	5.00
ARGENTITE, Freiberg. ½" rounded xl. in matrix of xld. Calcite. 3x2	3.00
FUCHSITE, Ural Mts. Bright green xlline. plates in rock. 3x2½x1½	2.50
SIDERITE, Cornwall. Small translucent xls. on Quartz w. Fluorite. 4x2	3.50
PYRARGYRITE, Saxony. Pure well xld. mass. 1¾x1. (2 oz.)	12.50
DIOPTASE, Guchab. Xlline. w. some xls. in calcite. Colorful. 2½x2x2	5.00

HUGH A. FORD

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Telephone: BOwling Green 9-7191

No lists furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PETER ZODAC, Editor and Publisher

America's Oldest and Most Versatile Magazine for the Mineralogist, Geologist, Lapidary.

Published Bi-Monthly

OFFICIAL JOURNAL

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Chips from the Quarry

EDITOR WILL ATTEND HOUSTON SHOW

ROCKS AND MINERALS will have a booth at the Houston Gem & Mineral Show in Houston, Texas, on May 1-3, 1953. The Editor will be in charge of the booth (No. 32) and he would be delighted to have friends call on him.

"We will see you in Houston!"

Utterly Frustrated by New Look!

Editor R & M:

I'm utterly frustrated! ROCKS AND MINERALS just came and I'm so thrilled with the new cover that I tried to call my husband to tell him but he's not in his office and I feel as tho I'll burst if I can't tell someone how much I like it. It's just marvelous. And it's so nice that you put a description under the picture on the cover telling exactly what it is and where from, etc. And the inch rule to indicate the size. All very satisfying. I've just glanced at the inside so far but Mr. Sinkankas will undoubtedly write in more detail later but I just do want to tell you right now how pleased I am and I hope everyone else is too.

Marge Sinkankas
Arlington, Va.

Feb. 10, 1953

New Look Does Not Please Subscriber!

Editor R & M:

As a subscriber for your fine magazine I think that I have the right to make a complaint on your January-February issue.

First of all may I say that I was highly disappointed in your new cover for several reasons. For one: When a cover is covered with so much ink, the cover wears out after just a few times of use. Also *I have been proud of the finest looking cover I have ever seen on any mineral magazine.*

Of course I am referring to the old cover. It was not gaudy and cheap looking as so many are. It was a beautiful white cover which gave it the interesting appearance of the journal it was. It had its change of color with the change of decorating lines and *it was sturdy.*

May I say that in my opinion your new cover is of no appeal what so ever to me. From the standpoint of wear and from the standpoint of beauty, I think the new cover is the cheapest I have ever seen. I say this because I have many magazines in my possession on mineralogy and not one compares with the fineness, beauty, arrangement, plan, contents, and feature articles of R & M. I think that it is the greatest help and finest piece of material ever written for the enjoyment of rockhounds. It is for this reason that I think that a great injustice has been done by putting on this terrible cover. THE COVER DOES NOT AND WILL NEVER FIT THIS OUTSTANDING MAGAZINE.

We had the finest cover of any magazine, but where is it now? The magazine looks now like the cheap money making pulps which now have flooded the mineral market. Please, sir, could we please have the old cover so our magazine could look as fine as it used to?

Also the paper used in the magazine in undesirable. It is too thin. The print shows through and doesn't take to it as well as the old.

PLEASE COULD WE HAVE THE MAGAZINE AS IT USED TO BE?

I have never had a complaint about the magazine proper and I never will because I repeat it is the finest there is and GOD keep you and reward for the time and the outstanding effort you have given to me through your magazine. I know how much effort and trouble it is to put one of those things together and that is the reason that I think that R & M is so great. And may I add that you must be a great man to take that effort to put it together. But please let's have the old cover and the old type paper for its pages.

Robert E. Riecker
9709 South Prospect Avenue,
Chicago 43, Ill.

Feb. 18, 1953

Wide Awake Readers Says A Dealer!

Editor R&M:

I like the new cover on R&M. Strange thing, I received an order for specimens advertised in the January-February issue before I received my copy of R&M. Readers of R&M are wide awake, and it seems they look forward to receiving a copy, and waste no time reading it. Proof that R&M magazine is appreciated by collectors.

Best wishes and kindest regards.

John S. Albanese
P. O. Box 221,
Union, N. J.

Feb. 14, 1953

Rocks, Minerals and Man [1, 2]

By JAMES H. BENN

Treasurer of the Eastern Federation of Mineralogical and Lapidary Societies and Member of the Geological Staff of the United States National Museum, Washington, D. C.

Since the turn of the century minerals have become increasingly better known to the general public. In a great measure this has been brought about by laymen, mineral collectors and cutters who have banded together in societies and clubs for the benefit of mutual exchange of knowledge and of specimens. Likewise the merit badge program of the Boy Scouts of America is doing its share to stimulate an interest in mineralogy by offering scouts a badge for achievement in the study of rocks and minerals. Our schools, too, have become more aware of the value of teaching elementary studies of such subjects in conjunction with biological natural history. Throughout the country, science fairs for students have been held to discover young men and women with a natural bent toward scientific investigation. These have revealed individuals with remarkable ability in the field of mineralogy.

However, even with the foregoing means of education and popularization, one is frequently confronted by laymen with the statement and question—I grant that minerals are beautiful; but what good are they? It is this final question which I shall attempt to answer by briefly setting forth some of the amazing history concerning the use and development of our mineral resources.

In order to understand more fully history as related to rocks and minerals and to appreciate thoroughly how far man has advanced in their use, I wish to review the science of mineralogy as we know it. First, however, allow me to emphasize that without minerals there would be no life. Man derives his material existance from minerals in the soil which grows his food, as well as food for his cattle and other livestock. He smelts the metals from ores and with these metals he has created modern civilization. Transportation, communication and all industry depends upon minerals for continued operation.

In the study of minerals, we deal mainly with the earth's crust. As this is composed mostly of minerals aggregated to form rocks I must speak of both rocks and minerals in this paper. Minerals also occur separately and in bodies not commonly called rocks. Such bodies include most ore deposits, vein fillings and similar masses found in seams, crevices, fractures and other rock openings. Furthermore, mineral concentrations may occur on the earth's surface that are of later formation than the containing or underlying rock.

The materials of some deposits arise from deep within the earth by underground waters, vapors and gases and by volcanic activity. Others are made of minerals formed by chemical and mechanical changes in the surface rocks and minerals. Some changes are made by the selective action of water by solution and precipitation from solution. Placer deposits are concentrations of heavier minerals by the mechanical work of water and wind; while gypsum, common salt, nitrates and similar substances are deposited by evaporation from solutions containing them.

When a mineral forms its component atoms arrange themselves in a definite order characteristic of the particular substance. Thus arranged it is crystalline whether or not it shows crystal faces.

However, a mineral, solidified under unfavorable conditions, may be massed without definite order, as found in opal; it is then amorphous—without form.

In the formation of minerals during the solidification of rocks the growth of one

1. Talk given before the District of Columbia Mineralogy Society, June 20, 1952.

2. Published by permission of the Secretary of the Smithsonian Institution.

mineral is likely to interfere with that of another and prevent the development of perfect crystals. In some molten rock masses (or magmas) certain minerals begin to crystallize earlier than others and may complete their growth with little or no interference, and form more or less perfect crystals, such as crystals of quartz in quartz porphyry or hornblende crystals in hornblende porphyry. In others, the earlier minerals may show some perfect planes of crystal development while faces of the crystal may be distorted or absent. The last mineral to solidify occupies the irregular spaces left between those already formed. Growth of such crystals will be limited by the space remaining and their boundaries will be the walls of the irregular space they occupy. However, arrangement of the atoms in these irregular masses of minerals is the same as that in a perfect crystal of the same mineral. Because of this atomic arrangement present mineralogists make use of X-ray photographs in identifying such imperfect crystals.

Most minerals have definite chemical compositions and may be described as naturally occurring chemical compounds. Rocks are mixtures of minerals, although in a few cases rocks are composed of a single mineral, as in quartzite. Materials of organic origin such as amber and pearls are excluded as minerals, but fossilization formed by the replacement of organisms by minerals are included, examples of the latter being the silicification and opalization of wood, bone and shell.

The classification of minerals is primarily a chemical one, the minerals being arranged according to their related compositions, and secondarily a crystallographic one, for in any chemical division minerals of similar chemical composition, related crystallographically, are placed together in a group. Thus, the sulfates, barite (barium sulfate), celestite (strontium sulfate) and anglesite (lead sulfate) constitute the barite group as they all crystallize in the same system (the orthorhombic) and though the habit may vary, the angles between corresponding faces are almost identical. This is the standard systematic classification.

Some authorities arrange minerals according to a metallic classification; although there may be certain advantages in this method, it separates many similar minerals and unites many dissimilar ones.

At present there are about 1600 mineral species known in the mineral kingdom. Many are very rare and some are found at only one or two localities. Franklinite from New Jersey and benitoite from California are well known examples.

The derivation of mineral names is always of interest to everyone. Some are given in honor of prominent men, for instance: biotite (Biot, French physicist), brucite (Bruce, an early American mineralogist), dolomite (Dolomieu, a French geologist), kunzite (Kunz, noted American gemologist), roeblingite (Colonel Roebling, famous American collector of one of the finest aggregations of minerals and gems in the U. S. National Museum), canfieldite Frederick A. Canfield, another American enthusiast, whose excellent collection is also housed in the U. S. National Museum), danalite (the daddy of them all, J. D. Dana), goethite (Goethe, the German poet), millerite (Miller, English crystallographer), scheelite (Scheele, Swedish chemist), smithsonite (James Smithson, founder of the Smithsonian Institution) and foshagite (W. F. Foshag, Head Curator of the Department of Geology, U. S. National Museum).

Other mineral names are of geographical origin based on well known localities, such as aragonite (Aragon, an ancient kingdom in Spain), brazilianite (Brazil), copiapite (Copiapo, Chile), labradorite (Labrador), utahite (Utah), franklinite (Franklin, N. J.), vesuvianite (Mt. Vesuvius, Italy) and so forth.

Certain mineral names are derived from Latin or Greek words describing various colors, as follows: albite (white), azurite (blue), crocoite (saffron), chlorite (green) and erythrite (red).

The following names you will recognize as being based on chemical compos-

tion: argentite, arsenopyrite, barite, chromite, cobaltite, cuprite, hydrozincite, magnesite, molybdenite, and uraninite.

There is always the question that occurs to a beginner in mineralogy as to why most mineral names end in -ite. This suffix signifies a quality such as honor added to the name of a man as in smithsonite, fame to a geographical locality as in franklinite or used according to some constituent in the composition of a mineral as in uraninite. Dr. Roland Brown of the United States Geological Survey, an authority on Latin and Greek derivatives, informs me that -ite is a Latin and Greek suffix, meaning—pertaining to, having the nature of, and in this sense is the basis of many rock and mineral terms. He also informs me that -lite is a modern derivative of Greek lithos, stone, and is attached to other roots to make rock and mineral names. A few names of minerals before the practice of a suffix was adopted are quartz, opal, topaz, garnet, gypsum, mica, diamond, galena, jasper, amethyst and hornblende.

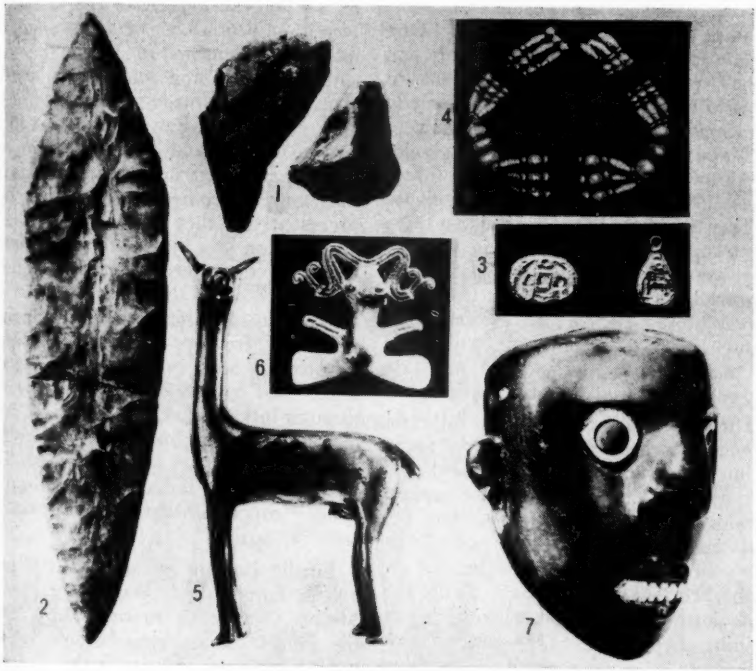


Plate I

No. 1—Two Eolithic artifacts — among the earliest evidence of some creature, more manlike than any living ape on earth, are flints and stones roughly chipped and shaped so as to be held in the hand.

2—Pressure flaked artifact of the Paleolithic period — such artifacts represent a stage of human culture which probably included 99 percent of man's life on earth since he became an established tool-using creature.

3—Gold ornaments from Neolithic Mesopotamia.

4—Ancient Egyptian beads of carnelian, amethyst and glass. In 309 B.C. carnelians, garnets, sapphires, zircons and many other precious gems were being imported from far away India.

5—Inca silver llama figure from Cuzco, Peru — although Cuzco received the name of "the Place of Gold," much silver was employed in making figurines and for personal adornment.

6—Gold ornament from Chiriqui Province, Panama. After Columbus' voyage it was not only the desire for trade and the search for religious freedom that colonized the New World, but also the cry for gold.

7—Carved and polished obsidian mask with shell inlays, Aztec Period, Mexico. Much has been written about the stone temples, pyramids and statuary of Mexico.

Photographs from the Smithsonian Institution

It is rather humorous to recall that in the not too long past days of mineralogy a binomial nomenclature like that used for plants and animals was also employed for minerals. Thus barite was known as Baralus ponderosus — sounds like the name of a tomato—celestite had the severe name of Baralus prismaticus.

From what has been said concerning our present science of minerals and rocks, you probably have deduced that there is a long history attached to the use of these materials by man—and so there is!

Among the earliest evidence of some creature, more manlike than any living ape on earth, are a number of flints and stones very roughly chipped and shaped so as to be held in the hand. These early implements were probably used as hand axes and hammers, scrapers and missiles for throwing and are known as "Eoliths." Illustrations may be seen on Plate I, figure 1. They are so crude and simple that there was a controversy for a long time whether they were to be regarded as natural or man-made. These stone artifacts are assigned to the end of the Pliocene and early part of the Pleistocene, (divisions of the geologic time scale), and are known as the pre-Palaeolithic period.

The Palaeolithic period which followed extended perhaps over a million years, ending about 8000 B.C. It represents the first stage of human culture, the earliest of which we have sure evidence. This period includes probably 99 percent of man's life on earth since he became an established tool-using creature, all the periods down to the present covering the remaining 1 percent. At present a great deal more is known about Palaeolithic stone implements than about the people who made them. An example of a Palaeolithic artifact is pictured on Plate I, figure 2.

The end of the Palaeolithic led to a higher culture in the use of stone. Although implements were still produced by chipping, a preference was shown for extremely small forms, often having geometric shapes. Some of these forms had a wide distribution in Asia, Africa and Europe, showing that there were certain cultural relationships and also actual migrations of peoples. This post-Palaeolithic period is called the Mesolithic.

The next stage of development, the Neolithic, is marked by the presence of polished stone implements, stone axes perforated so as to fasten wooden handles, abundant arrow heads and pottery. After a long time gold, the first of the metals, appears among the bone ornaments with jet and amber. Gold ornaments from the late Neolithic period of Mesopotamia are pictured on Plate I, figure 3. Then, perhaps 6,000 or 7,000 years ago in Europe, Neolithic people began to use copper, making implements in much the same pattern as their stone ones. They cast the copper in molds made to the shape of the stone implements. Possibly they first found native copper and hammered it into shape. Later men discovered how to extract copper from its ore. It has been suggested that they discovered the secret of smelting by the chance of putting lumps of copper ore among the ordinary stones with which they built their fire pits for cooking. In China, Hungary, England and elsewhere copper ore and cassiterite (tin oxide) occur in the same veins; it is a common association, therefore, rather through luck than skill, the ancient smelters hit upon the more durable bronze, which is an alloy of copper and tin. This is borne out by the discovery of a prehistoric copper smelter and smelting material in Spain.

Finally, perhaps as early as 3,000 years ago in Europe, and even earlier in Asia Minor, men began to smelt iron. Once the process of smelting became known, there is no great surprise in the discovery of iron. The metal was produced at first in small pieces; introduction to its uses worked a gradual revolution in weapons and instruments. However, iron did not penetrate to large parts of Asia and Africa until many centuries later and did not form part of any culture in the New World until introduced from Europe in the 15th and 16th centuries A. D. Rare examples of early ornaments made of meteoric iron are known and at least two records of objects made of iron which were

not meteoric (and hence may have been smelted) have been reported in Mesopotamia from archaeological levels dating before 2500 B. C. The first certain development of iron metallurgy began, however, in Asia Minor about the 14th century B. C. and in Europe in the Hallstatt region of Austria in the 11th or 10th century B. C.

During this age the use of rocks and minerals continued with the development of pottery painted with geometric designs. Ornaments of various kinds of polished stones were cherished as religious symbols and amulets. Monumental structures in stone appear and pictograph writings came into use. Mineral pigments for coloring had been known since the early cave dwellers.

In the Nile valley during the river's annual flood, much mineral matter was carried down stream from the Ethiopean Mountains. Deposited over the land, this so enriched the soil that a relatively high agricultural civilization flourished. These scattered communities gradually united to form the kingdoms of Upper Egypt and the Delta. The unification of these two kingdoms marked the beginning of Egyptian history which has had so much influence on later Western civilizations. Archaeologists give the date of 3200

Photograph from the Smithsonian Institution

Plate II

Mill for the extraction of metals during the Middle Ages. Fac-simile of a woodcut in the "Cosmographie Universelle" of Munster, folio: Basle, 1552.

B. C. as the beginning of its early dynastic period. Civilized culture progressed—the Pyramids, the Sphinx, clustered colonnades at Luxor, bas-reliefs delicately carved in warm colored limestone gave to the use of rock a new dignity and elegance. Trade increased and by 309 B. C. carnelians, garnets, sapphires, zircons and many other precious gems were being imported from far away India. Amethysts were buried with the dead to give protection to the soul on its journey through the nether world. Many of the superstitions formed earlier and at that time are present even today among some people.

Egyptian craftsmen produced alabaster vases, limestone statues, stone bowls, colored glazed cups and other earthenware, copper plates and urns and glass bottles. Examples of these Egyptian antiquities may be seen in the collection exhibited at the Royal Egyptian Embassy in Washington and in the exhibit halls of the U. S. National Museum. Egyptian beads are pictured on Plate I, figure 4.

Through the following centuries, minerals more and more influenced cultural progress, history and the lives of men. Metal coins became a medium of exchange. Gemstones took on a new religious significance as they appear in the mosaic breastplate of Hebraic scripture and as the twelve foundation stones of the New Testament. The Romans with their superior armor made successful war against surrounding countries and thus started the march of western civilization. Whether or not man was conscious of it, rocks and minerals were definitely shaping his destiny.

The milling of ores for the extraction of various metals reached a comparatively high degree of development by the Middle Ages. A fac-simile of a woodcut depicting the industry is pictured on Plate II. Metal work during Medieval Times became an art and various guilds were formed by the artisans to improve their work, train apprentices and protect their trade. Metal casting, too, had come into its own as a skill—bells, cannon and various other objects were manufactured. Pictures of these craftsmen are shown on figures 2, 3 and of Plate III. About the time Columbus set sail on his historic voyage, blacksmiths and tool makers were producing objects such as pictured on Plate IV.

Through the Dark Ages and into the Renaissance, alchemists probed and experimented in trying to perfect a method for turning base metal into gold. In doing so many truths were discovered which eventually established the basis for the science of chemistry. Metallurgy also benefited by the efforts of alchemists.

Likewise, the use of gems as "cure alls" by early physicians gave way to intelligent investigation and medical science. Certain minerals were found actually to possess medicinal properties and thus in time replaced touchstones, lizard's tails and snake skins on the pharmacist's shelves. A druggist shop of Medieval times is pictured on Plate III, figure 1.

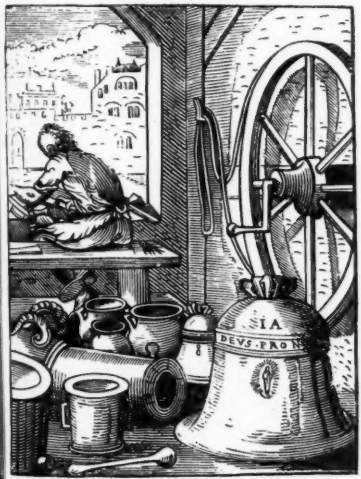
After Columbus' voyage it was not only the desire for trade and the search for religious freedom that colonized the New World but also the cry of "Gold! gold!" Figure 6 on Plate I represents a gold ornament from Panama in central America.

Of the numerous nations which occupied the American continents at the time of their discovery, the two most advanced in power and culture were undoubtedly Mexico and Peru. Much has been written on Mexico—its temples, pyramids, statuary, bas-reliefs and other carvings made in stone, and of the wealth of its silver and gold. See Plate I, figure 7 which pictures an Aztec carving of obsidian. In the literature we find references that even all the riches seized by the Spaniards were not enough to satisfy them. Cortez still wanted the treasure supposed to have been hidden from his men. Frequently today we hear rumors of ancient maps showing the path to Aztec gold. However, the mere presence of gold in the New World was sufficient to excite Spain to frenzied haste in exploration, conquest and colonization. Thus in the 16th Century New Spain was established.

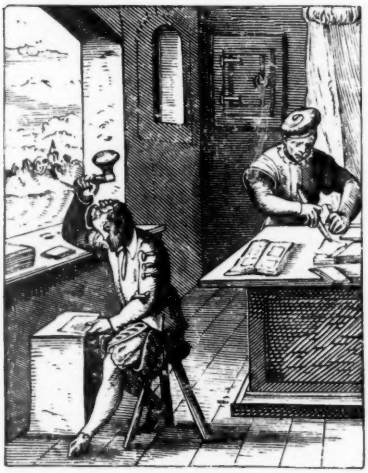
To the south of Mexico lay the great continent of South America and the

1 Druggist.

2 Coppersmith.



3 Bell and Cannon Caster.



4 Goldbeater.

Plate III

No. 1—Druggist of Mediaeval times. Certain minerals were found to actually possess medicinal qualities and these replaced touchstones and lizards tails on the pharmacists shelves.

2—Mediaeval coppersmith — man is supposed first to have hammered native copper into shape and at a later period discovered how to extract copper from its ore.

3—Mediaeval castings of iron — iron metallurgy was introduced into Europe in the Hallstatt region of Austria in the 11th or 10th century B.C.

4—Ancient goldbeater of Mediaeval times — gold, the first of the metals, has been found among the bone ornaments of Neolithic peoples.

Photographs from the Smithsonian Institution

mighty country of Peru. Pizarro, learning of the vast wealth of the Incas of Peru, proceeded to conquer this country in the name of Spain and seized its fabulous treasure of gold and gemstones. Descriptions of Peruvian temples in early authentic literature are almost unbelievable. Prescott, in his "History of the Conquest of Peru," tells us that Cuzco, the wonder of the empire, had become so enriched under the munificence of successive sovereigns, that it received the name of "the Place of Gold."

He further informs us that the interior of the temple was literally a mine of gold. On the western wall was a representation of the Deity, consisting of a human countenance looking, from rays of light which emanated from it in every direction, much in the same manner as the sun is pictured to us. The figure was engraved on a massive plate of gold of enormous dimensions, thickly powdered with emeralds and other precious stones. It was so placed in front of the eastern portal that the rays of the morning sun fell directly upon it, lighting up the whole interior with an effulgence that seemed more than natural when reflected from the golden ornaments encrusting the walls and ceiling. Gold in the figurative speech of the people was "the tears wept by the sun," and every part of the Sanctuary glowed with burnished plates and studs of the precious metal. Even the cornices were of the same material, and a broad frieze of gold set into the stonework encompassed the exterior of the edifice. Silver was also much used for figurines and personal adornment. See Plate I, figure 5, which pictures a llama figurine in silver from Cuzco, Peru.

The Spaniards after much bloodshed ransacked the cities and temples and the vast treasures were removed to the vaults of Spain. It is no wonder Spain became the wealthiest nation of that era and could afford to build great armadas which patrolled the seas.

All during the 16th, 17th and 18th centuries progress in the use of minerals continued. New elements were discovered and the study of rocks and minerals became more organized. "The Theory of the Earth," by James Hutton in 1785, laid the foundation of modern geology and William Smith assigned relative ages to the rocks. Various attempts at rock and mineral classification were made.

During the 19th and 20th centuries our knowledge of rocks and minerals has forged ahead in leaps and bounds. The Dana System of Mineralogy was introduced and is still in use as revised by Palache, Berman and Frondel. Geology, petrology and mineralogy became distinct sciences and with knowledge thus gained other sciences moved forward. Inventions were made which, without minerals, would have been impossible. The refining of metals, improvement of metal alloys, optical glass and many other achievements came about because of our greater knowledge of minerals and rocks.

Some of the inventions of the last century and a half which could not possibly have been produced without such knowledge and materials are: steamboat, gaslight, fluorescent lamp, electric lamp, arc lamp, cylinder press, electric motor and generator, steam locomotive, electric telegraph, reaping machine, screw propeller, steel plow, the straight line press, gasoline automobile, diesel engine, telephone, radio, sound picture, jet planes, television, radar and many, many others.

In a wild and deserted region of New Mexico during the ghostly hours before dawn on July 16, 1945, a group of men met to make a scientific experiment that was to astound the world. Some of the men located themselves 25 miles from a high tower and another group took positions 10 miles from that central point. The stage was set.

Some one then closed a switch which set in motion a series of events culminating in an awesome flash of brilliant light, followed by a tremendous surge of heat and seconds later by a jarring impact and a loud rumbling noise. Energy had been released from uranium atoms and man had entered the Atomic Age!

Acknowledgment

The writer thanks Dr. R. S. Bassler, retired head curator of the department of

Photograph from the Smithsonian Institution

Plate IV

These iron implements are of Spanish manufacture and were the kind in use about the time of Columbus' voyage to the New World.

geology, U. S. National Museum for his helpful suggestions in preparing this paper. He likewise extends his appreciation to curators H. W. Krieger and Clifford Evans of the department of anthropology of the Museum for their help in selecting photographs for illustration and to Doctors G. A. Cooper and G. S. Switzer of the Department of Geology, U. S. Nat. Museum for critical reading of the manuscript.

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GEOLOGISTS ESTABLISH AWARD FOR OUTSTANDING TEACHER

The Association of Geology Teachers, during its recent annual meeting in Boston, established an annual award for outstanding excellence in the teaching of Geology. The award is to be known as the Neil A. Miner Award of the Association of Geology Teachers, and is to be granted "for eminence in stimulating interest in the earth sciences." The medalist is to be selected by an award committee from a list of names submitted annually by members of the Association. He need not be a member of the Association nor engaged in formal teaching college or high school.

The award is named for Dr. Neil A. Miner, the late Professor of Geology at Cornell College, Mount Vernon, Iowa. Miner was one of the charter members of the Association at the time of its formation fourteen years ago, and for many years was a leading small college geology teacher.

As is true in other sciences, various national geological groups present awards for outstanding achievements in research. The Neil A. Miner Award will be the first recognition of meritorious accomplishment in the teaching of geology. Several other sciences have similar awards.

Officers of the Association, elected at the Boston meeting, are: President, David M. Delo, president of Wagner College, Staten Island, New York; secretary, Ralph Digman, Harpur College, Endicott, New York; vice-president, Joe W. Peoples, Wesleyan University, Middletown, Connecticut; treasurer, Gerald Friedman, University of Cincinnati; editor, William Read, Lawrence College, Appleton, Wisconsin.

Welcomes Fossil Column!

Editor R&M:

At last! A fossil column. A real column for the "old fossils" among us. Keep up the good work!

PS—I'm an "old fossil" too.

Douglas McCain
Box #127
Delphi, Indiana

Feb. 16, 1953

Likes Our New Cover!

Editor R&M:

Congratulations on ROCKS AND MINERALS new dress! Most distinctive and very attractive. Glad to see a fossil department added too.

My big regret is that I didn't get acquainted with your fine little magazine until 1951. Think of those wasted years!

Our hats are certainly off to an editor who single handedly has kept his publication up to such high standards. Every issue is a joy.

Best wishes for many, many more years of successful editorship.

Mrs. Benjamin Butler
93 Main Street,
Farmington, Maine

Feb.12, 1953

More Congratulations On Our New Cover

Editor R&M:

Congratulations on your January-February cover. I think it adds a great deal to your already popular publication.

Richard Frey
Eureka, Nevada

Feb. 14, 1953

SUMMER IN SCANDINAVIA

By JAMES A. TAYLOR

25 Old Oak Road, Glen Ridge, N. J.

Last summer I had the wonderful experience of a three month's journey with Mrs. Taylor to the lands of pleasant people, Finland, Norway, Sweden and Denmark. Our first object was the thrilling Olympic Games at Helsinki—my fifth—and then a long trip ending at Kopenhagen. Our approach was by S.S. Stockholm to Gothenburg, train to Stockholm and plane to Helsinki, Finland, over the Gulf of Bothnia and the thousands of little Aaland Islands which stand out strikingly in the sunlight.

Before starting I made elaborate researches noting the many mineral locations but of course I could visit only a small fraction of them. I had definitely planned to visit Outokumpu in Finland, the famous and largest copper mine in Europe. To my dismay I found it a three to four day trip from Helsinki even by plane and I did not have the time. To compensate for this I found in Helsinki the most friendly and courteous group of scientists that any one could wish to meet. Most of all were Professor A. Laitakari who sells his large store of minerals, not for himself but for the benefit of the Geological Institute, and his associate, Mrs. Toini Mikkola who speaks fluent English. She was exceedingly kind and drove me to the Professor's home twenty miles away. From him I got some fine Outokumpu specimens of Uvarovite, chrome tremolites, chrome diopside, fuchsites and others.

I did make a trip to Pargas, Finland, but of course the famous pargasites have not been found for forty years and the old quarries are flooded. Dr. Adolph A. Metzger, the geologist of the company not only hastened on his bicycle to meet us at the station but took us all through the vast quarries but unbeknown to me had before he left paid the taxi fare. Kindnesses like this are seldom encountered anywhere. In addition he sent his associate to Turku with us to meet Professor Gunnar Pehrman at the University of Turku from whom I got some of the rare pargasite crystals and some others. It is a joy to know there are people like this.

Helsinki is a clean, modern, prosperous up-to-date city from anyone's point of view. The department and other stores would look well in New York City and the people were delightful. One cop left his beat a block to direct me.

In connection with Finland paying her debts it is worth noting that Helsinki apartments have hot water only two days every other week in summer to save money. If the other countries of Europe had the same sense of honor this country would not be paying for them to the point of bankruptcy of ourselves.

The Olympic Games were marvelous in spite of seven days of rain. Conducted with the pomp and circumstances of an important international event surpassed perhaps only by a coronation they drew a vast crowd of noteworthy people and the greatest competition in history. It is worth noting that the ancient games were abolished in 384 A.D. because the bookmakers bribed the best men to lose and victory became meaningless. While this has not yet happened to track if the fake football "scholarship" is not stopped the same thing may happen to us and the Games.

As usual we cleaned up. The Russian Team of 400 in beautiful white suits behaved themselves nicely and unexpectedly were allowed to mingle with the capitalists. Fortunately there were no unpleasant incidents at the Games.

After the Games we flew to Rovaniemi above the Arctic Circle over the long flat stretches of woods and countless lakes of lower Finland and after thirteen hours on a bus—with mosquitoes—arrived at the surpassingly beautiful Kilpisjarvi Lake. Our alleged hotel was not finished and we bunked for two nights in little cabins resembling closets (various) and

no hot water. Another bus over the mountains of Norway to Tromso and then an eight day ocean trip around North Cape to Kirkenes on the Russian border. It was strictly forbidden to take pictures there and there was an armed guard to enforce it so I was pleased that mine turned out well. It is likewise forbidden to enter Russia but the experience of ducking around the barbed wire blockade was interesting.

The trip around North Cape was intensely interesting for the first three days but after that it was boring. We were most fortunate to have bright clear weather and I took a picture of the sunset at midnight. We labored from one little fishing village to another taking twice as long to load and unload freight as we would home. The rugged cape, the countless birds and endless islands were picturesque and unique. If they only had something in English to read it would help.

We saw many Laps and reindeer but these short people with bad teeth and living in tepees on the ground or in shacks were not very appetizing. The reindeer which were much smaller than I expected are the Lap's wealth and food. The men have a striking red pompon headress which seemed to universal.

It is completely futile to try to describe the fjords of Norway. These stupendous cliffs drop right into the water, moss covered and treeless with here and there a tiny patch of grass with a home hanging to the mountainside as though it had a nail through its pants. Of course the owners fish in season but what goes for food and how they survive on these little patches proves the Norwegian durable and resourceful. Then the roads! You come to the end of a fjord and you think that is the end. No. You have in front of you a 4,000 foot climb around perhaps twenty acute angle turns, many of which the bus cannot make in one try, so they back up and try again. In the meantime if you look over the edge you have a case of diaphram trouble. If the windows were open —on the opposite side—you might be inclined to dive out. Well you don't and after a dozen of these you decide the driver is darned good and probably wants to live as well as you do. If you go to Norway don't miss the Geiranger and Stahlheim Fjords. You will probably never see anything so breath-taking and gorgeously beautiful. You will have to take pictures to prove your veracity. I took 250 in color on the whole trip.

After that came Bergen then Lillehamer, usually rainy, but not for us. We had only two half days of rain after Helsinki.

Oslo of course is a splendid city. If you go there you must go up to Holmenkollen Hotel to see the harbor and the German fortifications and the international ski jump. The food is excellent.

Next we visited Kragero on the south shore of Norway. I had planned this in New York because of the mineral locations nearby. Our first delightful surprise was Mr. C. T. Johne and his family. We almost lived with them for four days and his hospitality and courtesy were boundless. The day after arrival, Mr. Johne and I spent a hard day collecting in two quarries with fair results. Next day I hired a launch and with Mr. Johne and his family we visited the Island of Laven, pronounced Loven. Don't bother to try to learn to pronounce Finnish, Swedish or Norwegian. You'll be wrong anyway so just stutter along, smile and write it. The island is just a big rock. We hunted for four hours for Laavenite and did not score. Only a few specimens years ago were found and none recently. I was told that all the other islands famed in story are either settled with cottages or played out. All along the south shore are famous mineral places but to visit them takes many days which I did not have.

Next came Karlstad in Sweden, a beautiful city with a splendid hotel. Somehow we must have drawn the royal suite with a bedroom 33 by 25 done in Louis XIV and a bathroom big enough for eight people.

I had hired a car for four days in New York but I did not understand that the thing was to be sent down from Stockho'm—240 miles. I had to drive it back but eventually I was glad of it for we saw a lot of Sweden in the 500 miles I

drove on the left hand side of the road. My real purpose was Langban (Longbawn) sixty miles away. I spent seven hours of hard work on the vast dumps and got very little but practically everything fluoresced. None of my other specimens did so. It had not been worked for iron for ten years and I imagine from the paths all around the dumps that regiments of collectors had tried to remove every trace of minerals. They are working the new shaft apparently for pure white limestone. Nobody spoke English and there was no place to eat or sleep. I visited a number of the mines usually cited with negligible results. Back to Stockholm through Orebro and Upsala was a delightful experience particularly Upsala with grave mounds of Viking kings which no visitor to Sweden should miss. The whole drive was through farm area. We also visited the exquisitely furnished home of Selma Lagerlof near Sunne. In all our trip we often felt like being in our own country though I must say even our farm homes are more substantial and of more varied pattern than anything we saw save the numerous castles.

My last mineral venture was Ytterby, an island 30 miles north of Stockholm by boat. This was where they first found the element Ytterbium. It is a delightful hour and a half sail. The quarry, no longer worked, is only a hundred yards from the landing. I had been told that the dumps had been removed for road building but there is still considerable left over. I did get gadolinite, fergusonite and garnets and some minerals I do not recognize but these were more than I expected.

We flew to the charming city of Kopenhagen and the SS Stockholm to New York.

The trip was planned entirely the way I wanted it.

For every accommodation, every transfer, meals, busses and hotels I had a voucher in my hands before we left New York through the American Express Company. We spent nights in 21 different places with 36 changes and I did not have a single hitch in the whole trip of three months. It is really the way to travel and I highly recommend it. The route we took was carefully prepared with a day or so rest in between and I would love to do it all over again.

Swamped With Trades!

Editor R&M:

Have not resubmitted my adv. on "Will Trade" as I just don't seem to be able to really catch up on the trades resulting from my earlier advs. It is too good a media for advertising.

Bob Markert

Jan. 23, 1953 — Ishpeming, Michigan

R & M Brings Him World-Wide Activities!

Editor R&M:

I would appreciate it very much if you would please renew my subscription for R & M. It is surely the best magazine for the collector, because it brings the recent world-wide mineral collecting activities into my home.

John Dreisbach
144 Belle Avenue,
Feb. 14, 1953 — Maywood, New Jersey

Renews For Five Years!

Editor R&M:

I think my subscription has expired and the enclosed check is for five years, so the subscriptions will not expire for some time again.

A. H. Milner
Feb. 19, 1953 — Indianapolis, Indiana

New Name: Office Specialties

Lloyd W. Harazim, distributor and jobber of office supplies, office equipment, office specialties and rubber stamps, 2364 No. 58th, Seattle 3, Washington, announces a change of firm name to Office Specialties.

Managed by Lloyd W. Harazim and associate B. C. Harazim, the Office Specialties is distributors for Ideal Bookkeeping Systems, typewriter ribbons, rubber stamps and numerous office supplies. They publish a catalog and if you do not find what you want in their catalog, just write them and ask them any way! Probably they have it or can get it for you.

They are at the present time compiling a new office supply and rubber stamp catalog which will be available at a future date, watch for this notice!

World News on Mineral Occurrences

Items on new finds are desired. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—Crystalline

ALABAMA — The following letter dated Jan. 3, 1953, comes from John F. Mitchell, Box 205, Golconda, Ill.

"I was recently on a trip to Florida to visit my relatives. Being an amateur, and having the adventurous spirit of a 12-year-old, I collected minerals where there were interesting formations.

"I am sending you, by separate cover, a small specimen of a mineral that I am unable to identify. This sample was taken about 15 miles south of Anniston, Alabama, where the rock had been cut away to make way for a highway. Veins of white and pink calcite (intermixed) were also found in the rock. The pink will fluoresce red under a short wave Mineralight."

The specimen sent in is not a mineral but a rock called phyllite—a lustrous dark gray finely xline metamorphic rock intermediate between mica schist and slate. It resembles very much in appearance the famous phyllite of Peekskill, N. Y., and is the first phyllite we ever saw from Alabama.

A second letter, dated Jan. 30, 1953, from Mr. Mitchell tells us:

"Concerning the phyllite, it was found in a road cut situated in Randolph County, Ala., on State Highway 37, about 15 miles south of Anniston."

ARIZONA—Native silver, small plates on massive chalcocite, has been found in the copper mines at Bisbee, Cochise Co., Ariz.

ARKANSAS—Braunite, blackish gray in color, occurs with black masses of psilomelane in the Batesville district, Independence Co., Ark.

CALIFORNIA—Thomas Ronan, 2436 Marion Ave., New York 58, N. Y., has sent in an item relative to the rare mineral, nasonite, being found in the West for the first time in the limestone quarries at Crestmore, near Riverside, Riverside Co., Calif. The nasonite is part yellow and the other a pale bluish-green.

The discovery was made by Dr. Joseph Murdock, professor of geology at the University of California at Los Angeles.

The only other known occurrence of nasonite is in the zinc mines at Franklin, Sussex Co., N. J.

The following letter, dated Jan. 7, 1953, comes from William Nisson, 815 D St., Petaluma, Calif. It reads:

"In the November-December 1952 issue of ROCKS AND MINERALS under "World News on Mineral Occurrences," sub-head Alaska, you mentioned that the mineral Stellerite was found in Alaska.

"Being a proud Californian, I can not help but call your attention to the fact that stellerite is also found in "The Geysers" area, Sonoma County, Calif. It was noted by M. Vonsen in CALIF. JOUR. OF MINES & GEOLOGY, July 1946, page 292. "Stellerite . . . . occurs in small tabular crystals, sharply developed, ranging in size from 2 to 4 millimeters. Sometimes it is in a calcite matrix and often in small open fissures with quartz and calcite."

"I must add, however, that there should be no inference that the mode of origin of the stellerite be associated with the present hydrothermal activity as described by G. Switzer in his article in your recent and fine anniversary issue. It is I believe, of chance occurrence as is edingtonite and brewsterite among such other recognized species as laumontite, thomsonite, datolite, natrolite, prehnite, pectolite in serpentine and its associated basic dikes elsewhere in the same geological formation. The minerals forming from the present hydrothermal activity are of an extreme different type."

Some nice specimens of iridescent obsidian have been received from H. H. Arends, Box 64, Nubieber, Calif. These are grayish-black lustrous masses, having zones of very fine parallel bandings which in the reflected light show a play of colors—grayish, bluish, greenish. The specimens resemble the iridescent obsidian from Oregon that were described in the Aug. 1934, R. & M. pp. 112-113, by P. L. Forbes.

"In regard to the obsidian I sent you, it does not come from Oregon but from the northeastern California from what they call the Fort Bidwell district (N/E Modoc Co.). The territory is covered with obsidian but the iridescent type just runs in 50 foot streaks. The streaks may be colored but 5 feet away not a bit of color."—Mr. Arends' letter, dated Jan. 5, 1953.

Elmer Lester, 4116 "T" St., Sacramento, Calif., has made some interesting finds, as per letter, dated Dec. 6, 1952.

"Am sending you six little specimens that I think you will find interesting. Three of them came from the Josephine Mine near Volcanoville (Eldorado Co.) Calif. This was an active gold mine up to about a year ago. The main slope tunnel is now 200 feet into the hillside. At 1600 feet they broke into a cavern about 20' x 20' that was literally filled with quartz crystals, side walls, floor and ceiling, a really beautiful sight. Most of the crystals are covered with calcite and pyrites. Many of these pyrite cubes are the rare cubo—octahedron form. You will note that one of the specimens has the calcite included in the quartz.

"Another specimen (rock crystal) I found in the Old Dutchman's Mine near Bowman's Lake near Emigrant Gap, Nevada Co., Calif. It shows second growth, phantoms in the making. If you will put your glass on it you will find it literally filled with tiny pyrite cubes.

"There is one more specimen, which I found in a small pocket at Norman Hill, near Georgetown, (Eldorado Co.) Calif. These are different than any I have found or seen in that the mineral is always on the outside of the quartz in a plate form and where it goes into the quartz crystals it is rutilated. I believe it is rutile but cannot be sure.

"Keep the ROCKS AND MINERALS coming and don't let me miss a single issue. Despite a few cranks, you have many, many people in California who think it Tops".

COLORADO — Nice specimens of agate have been found at Garden Park in Fremont Co., 7 miles north of Canon City, Colo.

CONNECTICUT — Some interesting specimens of small masses of grayish native bismuth in iron stained massive quartz and coming from the noted Lane bismuth mine near Monroe, Fairfield Co, Conn., have been sent in by Walter Busch, 43-32 Elbertson St., Elmhurst, N. Y. In his letter dated Jan. 15, 1953, Mr. Busch writes:—

"I am sorry to hear that you have no native bismuth in quartz from that noted locality in Connecticut, so I am sending you with my compliments two of the nicest specimens I have. I will send them out tomorrow. It took me many years to find this locality. You have probably been to the nearby Booth's bismuth mine which is easily accessible and whose dump has been literally moved by the mineral clubs in search of these rare specimens. My bismuth has come from that other famous locality, Lane's bismuth mine, which is very inaccesible, but which still has some nice specimens on the 3 or 4 small dumps. There are very few persons who know its locality; it's an old mine (water filled shaft) about 100 or more years old. There are no records available which attested to the character of the ore or how much was mined. Prof. Stillman quotes that bismuth in plates 1 inch square occurred there with native silver (probably galena), but the biggest bismuth plates I found were just 1/8" wide and no signs of galena, silver or other associated metals. These make attractive specimens. I have done a lot of trading with these specimens as they are rare and collectors desire them for their collections.

DELAWARE—Diatomaceous earth occurs around Appoquinimink Creek in New Castle Co., Del.

FLORIDA—Merton McKown, of So. Ozone Park, N. Y., is spending the winter in Florida (2918 Ola Ave., Tampa). A letter from him, dated Dec. 25, 1952, reads:—

"People interested in the mineralogical aspects of Florida think of calcite and chalcedony as the only minerals found here. A big cement company from Pennsylvania is building a big cement mill at Bunnell (Flagler Co.), using coquina limestone with the addition of staurolite from Starke (Bradford Co.). I never knew that there was any of this material here, to say nothing about it in commercial quanities; its use in the manufacture of cement is interesting.

"Sunday I met a new friend here from New York who told me about a sulphur mine south of Bartow (Polk Co.) Fla.

"And then there are the phosphate mines here. I passed several of them on my way east of here when I went to the Bok Tower, (near Lake Wales in Polk Co.). I expect to go there again. One thing I noticed there, the top soil seems to be white sand so prevelant here, but where ants or moles carry out subsoil it is red sand, one rock out crops near the tower sandstone heavily stained red. Would you like a sample of the red sand?"

Three large clippings on Florida's mineral resources have been sent in by W. R. Olsen, New Port Richey, Fla. A letter, dated Jan. 3, 1953, from Mr. Olsen reads:—

"Last week these three articles appeared in the TAMPA MORNING TRIBUNE and as it was more information on all the subjects than I have seen anywhere else I thought that you might be interested in the progress of the mining and use of Florida's mineral resources. The fourth article did not deal with any minerals and so I did not include it."

The three articles, written by J. A. Murray, Tribune Staff Writer (Tampa, Fla.), show the development of new Florida industries contributing to the atomic era. These articles are:—

"Phosphate industry in Tampa area spends $35,532,525 to get uranium," (Sunday, Dec. 28, 1952).

"New plant in State mines newest of rare metals to be used as atomic reactors," (Mon. Dec. 29, 1952).

"Rare minerals produced by plants worth $5,000,000," (Tues. Dec. 30, 1952).

GEORGIA — Grayish-brown twinned xls of staurolite with tiny dark red garnet xls embedded in them, occur at West Jasper, Pickens Co., Ga.

IDAHO — Some interesting specimens of opalized wood, mottled white, brown, black, and which fluoresce green under the short wave Mineralight, have been sent in by G. Elmo Shoup, Box 756, Salmon, Idaho. In his note, dated Dec. 29, 1952, Mr. Shoup writes:—

"I am sending you a few fluorescent opalized wood specimens found in the foothills north of Salmon, Lemhi Co., Idaho. This material made a perfect ring setting for a 60 year old gold ring that had lost its ruby setting some 25 years ago. The ring with its new setting was given to its rightful owner, Wm. H. Shoup (83 years young) by his wife, as a Christmas present. The ring was cleaned and the setting sawed, polished, and set by Kane Lapidary and Supply, 2813 N. 16th Street, Phoenix, Ariz."

ILLINOIS—One of the nicest fluorite specimens from Illinois that we ever saw, was recently donated to us by John F. Mitchell, Box 205, Golconda, Ill. It consists of large dark purple cubes of fluorite on a base of brownish-yellow fluorite and its locality—Victory Fluorspar Co. Mine near Elizabethtown, Hardin Co., Ill.

INDIANA—Asphalt, as a bed several feet thick, was found in a deep well near Princeton, Gibson Co., Ind.

IOWA—Fred Anderson, Adel, Iowa, in his letter dated Nov. 15, 1952, tells us:—

"I have a number of heavy metallic masses (about 50 lbs. in all) that interest me a lot. Will you please tell me what the mineral is? These were found in glacial drift over a 50 mile area starting about 2 miles south of Fort Dodge (Webster Co.), Iowa, and extending on south. I enclose a small sample."

The mineral is marcasite—pale brassy xline and of nice quality even though a very small one.

KANSAS — Nice specimens of moss opal (black dendrites in milky white opal) have been found 5 miles south of Wallace, Wallace Co., Kans.

KENTUCKY—Red hematite has been mined near Owingsville, Bath Co., Ky.

LOUISIANA — Sulfur, in small amounts, occurs in the cap rock being quarried at Pine Prairie, Evangeline Parish, La., so we have been informed by Mark H. Robinson, 18 E. 41st St., New York, N. Y., who comes from Louisiana.

MAINE—The following letter, dated Oct. 27, 1952, comes from David M. Seaman, 51 Ralph Mann Dr., Stoughton, Mass.

"About a year ago while on a field trip to Topsham (Sagahoc Co.), Maine, I found a tiny one-eighth inch tabular, light pink, transparent apatite crystal in a small vug with albite crystals in a recent quarry being worked for beryl. This locality was near the old Fisher quarry of blue topaz fame. This is the only occurrence for pink apatite that I know of in Maine in recent years. The indices of refraction were taken which prove its being apatite and not morganite beryl which I at first thought it might be. In 1935 I found a few zoned crystals of apatite at Mt. Rubellite, Hebron (Oxford Co.), Maine, which had light blue centers with a purplish-pink outer zone. These are the only pink apatites I know as having been found in Maine but I have seen a few similarly colored ones like the Topsham crystal of larger sizes from Mesa Grande, Calif."

MARYLAND—Two new minerals for the State of Maryland are reported by French Morgan, 2601 Brentwood Road, N. E., Washington 18, D. C. Note his letter, dated Dec. 18, 1952:—

"Two new minerals for the State of Maryland are reported—millerite and beraunite.

"Early in March,1952, Ned Blanford and a friend from Baltimore, Md., found two boulders, or concretions, containing millerite, at a fireclay mine on U. S. 40, two miles West of Frostburg, (Allegany Co.), where iridescent siderite and small crystals of barite are also found. Twelve specimens were obtained from the two nodules.

"About the same time French Morgan found two nodules at the site of radio station WWV, in Prince Georges County, Md., about two miles East of Beltsville, Md., that contained beraunite. Six specimens resulted from this find. This is the same locality where rockbridgeite was found ten years ago by Dr. E. E. Fairbanks, then a member of the Mineralogical Society of the District of Columbia. At that time the material was thought to be dufrenite. Blanford and Morgan are also members of the D. C. Mineral Society."

"Dr. George Switzer, of the U. S. National Museum, recently identified this mineral as being beraunite, and will later report on other new minerals at this locality."

MASSACHUSETTS — Some few months ago we received a number of pebbles from A. M. Dixon, Foxboro, Mass., who collected them on Nantasket Beach, Plymouth Co., Mass. Among the pebbles was a granite specimen containing tiny chocolate-brown xl masses of titanite.

MICHIGAN—Interesting thin slabs of reddish selenite, sometimes encrusted with tiny colorless selenite xls, occur in the gypsum deposits at National City, Iosco Co., Mich.

MINNESOTA — Wm. J. Bingham, 2100 Arcade St., St. Paul 6, Minn., has informed us that a brickyard near his city is noted for fine fossils—bryozoas, crinoid stems, and some trilobites.

St. Paul, in Ramsay Co., is the capital of Minnesota.

MISSISSIPPI—We happened to spot the following item in a book issued in 1825—*A Catalogue of American Minerals with their Localities,* by Samuel Robinson, M. D., Boston, 1825. (p. 225):—

"PETRIFIED WOOD. An excessive drought, in the summer and autumn of 1800, displayed to view a flat of more than 100 paces wide, along the bottom of the usual bank of the Mississippi River, near Natchez (Adams Co., Miss.), at low water, which probably was never visible, at least for ages, to human eyes. On this flat were to be seen trunks of trees in a complete state of petrification, bearing no marks of timber, except the form, and different colors of white and red wood, both of which are much changed. Also on the same flat or bottom lie thousands of bodies, which have the appearance of stone, of all sizes, from the bulk of walnuts to that of large pots, Many of the large ones are broken; they have the appearance of fragments of pots, and seem to be rich

"IRON ORE. A stroke of the hammer will break them to pieces like an earthen vessel. They incline to a globular form, with some flats on their surfaces, and within each is nucleus of white, marly substance, about the consistency, when dry, of chalk. The mass above the plain is of a substance between hard clay and stone, mixed with gravel and strongly impregnated with the *Sulphate of Iron.*"

MISSOURI—A nice specimen of red granite from Graniteville, Iron Co., Mo., has been sent in by Roger Maserang, Box 395, RR 1, East Carondelet, Ill. A number of post cards, photographs, and a clipping were also received. From his letter, dated Dec. 18, 1952, we read:—

"The clipping and three of the photographs depict a most unusual rock formation near Graniteville, Mo., which I was fortunate in visiting last summer. As you can see from the photographs, the formation, 'Elephant Rocks', is well named."

The clipping is taken from the *St. Louis-Post Dispatch,* Sunday, June 1, 1952. It contains a large picture of the red Elephant Rocks, in color, and this caption:—

"Elephant Rocks near Graniteville are spectacular examples of rock sculpturing by nature. The rounded granite boulders, named because of their fancied resemblance to elephants backs, were formed by type of weathering called exfoliation, or scaling off of sharp edges after solid rock mass was split by cracks, eroded by rain and frost. Large open-pit granite quarries in the neighborhood, opened in 1868, are still being worked. Efforts to preserve Elephant Rocks as State park have failed."

MONTANA — An interesting pebble of mottled dark gray-cream-pinkish scoria, from Miles City, Custer Co., Mont., has been donated by Mrs. Edward P. Olson, Box 425, Beresford, S. D.

NEBRASKA—A soft coal deposit (bituminous coal) has been mined at Honey Creek, 4 miles south of Peru, Nemaha Co., Nebr.

NEVADA — A nice specimen of creamy-white foliated powellite associated with brown garnet and coming from the Batholith mine near Elko, Elko Co., Nev., has been received from Roy Shoemaker, 1827 W. Drescher, San Diego 11, Calif. The powellite fluoresces creamy-yellow under the Mineralight and was collected last summer by Mr. Shoemaker.

NEW HAMPSHIRE—A new mineral new to science and given the name, hurlbutite, has been found at the Smith pegmatite mine at Chandler's Mill, Newport, Sullivan Co., N. H. It is a colorless to greenish-white calcium-beryllium phosphate. The name hurlbutite was given the mineral in honor of Cornelius S. Hurlbut,

"Elephant Rocks" Graniteville, Mo.

Jr., Professor of Mineralogy, Harvard University.

Hurlbutite was described by Mary E. Mrose, in the Nov.-Dec. 1952, AMERICAN MINERALOGIST, pp. 931-940, (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

In her introduction, Miss Mrose writes:

"The mineral here described as hurlbutite was first found as a large broken crystal on the dump at the pegmatite known as the Smith mine, Chandler's Mill, Newport, New Hampshire by Dr. Judith Weiss-Frondel in August, 1949. Within five minutes of the original find the writer picked up a matrix specimen containing two crystals of hurlbutite embedded in light-smoky quartz in the same general section of the dump. It is very probable that these original specimens would have been overlooked had it not been for the yellow stain on the surface of the crystals. Successive visits to the same locality were not fruitful until the spring and summer of 1951 when nineteen additional crystals were collected by various members of the mineralogy department at Harvard. Other than the aforementioned crystals the only other specimens of hurlbutite known to have been found were by Gunnar Bjareby of Boston and Curt G. Segeler of Brooklyn, New Work."

NEW JERSEY—A nice specimen of white xled calcite from the trap rock quarry at Fanwood, Union Co., N. J., has been received from J. Kent Perry, RFD 1, White House Station, N. J. A note dated Dec. 16, 1952, from Mr. Perry reads:—

"The calcite is interesting for it fluoresces light pink with long wave (B50 Mineralight)."

The following letter, dated Dec. 29, 1952, comes from John S. Albanese, P.O. Box 221, Union, N.J.—

"Have just received a letter from Dr. Frondel of Harvard University, acknowledging a donation of a very unusual specimen from Franklin, N. J. A new specie at Franklin.

It is a small specimen, about 1½ inches of brown serpentine coating granular franklinite. This serpentine shows, under a lens, several minute crystal casts, tabular, and very much like the familiar tabular crystal casts from Paterson, N. J. The specimen also showed gorgeous microscopic crystals of hemimorphite.

"I am quoting Dr. Frondel: Thank you very much for your kindness in sending the very curious and interesting specimen from Franklin. It is a crystal cast, as you say, but I am not certain of the identity

of the original mineral. It might be anhydrite. End of quote."

"So, you see, that many collectors miss a lot of fun by neglecting to examine all specimens under a glass. Had I not examined the above specimen under a microscope, I might not be the first one to discover crystal casts in Franklin material. Perhaps readers of R & M might be interested."

NEW MEXICO—A nice foliated mass of molybdenite from the Molybdenite Corporation of America mine, Red River, Questa, Taos Co., N. Mex., was sent in by Fred G. Knowlton, Bayfield, Colo. The mineral was personally collected last year by Mr. Knowlton while on a visit to New Mexico.

In *Minerals of New Mexico*, by Stuart A. Northrop (University of New Mexico Press, Albuquerque, N. Mex., 1942) appears the following on p. 218.—

"Red River district, chief ore mineral (molybdenite). 'One of the three largest known molybdenum deposits in the world. This deposit is of much higher grade than any other deposit in the United States.' It is interesting to note that up to 1916 it was mistaken commonly for graphite. Some is fine grained; also as aggregates of coarse flakes up to nearly an inch across, also as scattered crystals. Much of it occurs as thin films and flakes along joint or fracture surfaces, up to lenses five or even more inches thick; masses have a distinctly lamellar structure. Coatings along joints are locally termed 'paint'. Occasionally found as masses of almost pure molybdenite weighing several hundred pounds."

NEW YORK — Large groups of pale yellowish tabular calcite xls used to be found on Anthony's Nose near Peekskill, N. Y. Large groups of tabular calcite xls heavily incrusted with drusy quartz (colorless rock xls) were also found at the same locality. It is believed that these huge minerals (specimens 3 ft. long have been seen) came from the old pyrrhotite mine on Anthony's Nose (in Westchester Co.) or from the nearby N. Y. C. RR tunnel at the foot of Anthony's Nose. In 1933, when R & M A held a field trip to the pyrrhotite mine, one rank amateur collector found a group of platy calcite xls but disappeared with it before the specimen could be closely examined. Small specimens up to 3 or 4 inches of calcite, and drusy quartz on calcite, turn up on dealers shelves occasionally; they come of course from old collections.

NORTH CAROLINA—Nice plates of autunite which fluoresce a bright green under the Mineralight, occur at Gusher Knob, near Ingalls, Avery Co., N. C. The autunite is found on massive smoky quartz.

NORTH DAKOTA — Lustrous black though small flakes of biotite occur in red granite at West Mandan, Morton, Co., N. D.

OHIO — The following letter, dated Aug. 2, 1952, comes from Howard V. Hamilton, 115-B E. Adams St., Vandergrift, Pa. In some manner it got overlooked or it would have been printed before.

"This summer I managed to get away for six days. We visited the Toledo, Ohio, area. We stopped for a nice visit with C. O. Gettings and his family. One day Betty (Mrs. Hamilton) stayed with the Gettings while I went to Put-in-Bay, Ohio, (on an island in Lake Erie). While on the island I collected some, visited Crystal and Mammoth Caves and looked up Eugene Kindt. Eugene is 15 and just getting started at collecting. He gave me some very nice celestite specimens from various places on the island. One specimen was white radiating crystalline and another showed bits of native sulfur. He also gave me a specimen of white radiating celestite in yellow-brown fluorite from nearby Rattlesnake Island. He had a large geode-like mass lined with fine large fluorite crystals from Rattlesnake Island. This material fluoresces a bright yellow with strong phosphorescense under a short wave Mineralight.

"In Toledo I visited Mr. Vernon D. Richmond. He is a pleasant middle aged

fellow who has been collecting about 3 years. He has accumulated some nice stuff by trading. He has a lot of fine local specimens for exchange.

"We went out to a quarry at Woodville (Sandusky Co., Ohio) and saw a large blast. The quarry is about 90 feet deep and they had 8 holes each charged with 500 to 600 pounds of dynamite. It was quite a sight.

"The next morning we returned to the quarry and collected some celestite and fossil clam shells which are abundant there. We then drove to the Pugh quarry near Custer, Wood Co., Ohio, and collected a few nice golden-brown calcite."

OKLAHOMA—A nice polished specimen of red granite from Snyder, Kiowa Co., Okla., has been donated by Mrs. Ruby Renfro, 2901 Bomar Ave., Fort Worth 3, Texas. The granite is said to contain tiny grains of zircon which fluoresce orange-brown under the Mineralight (short wave) but we could not spot any in the specimen sent us.

OREGON — Glaucodot, a cobalt-iron arsenide-sulfide, tin white in color, has been found at the old Standard mine, in Grant Co., near Sumpter, Baker Co., Ore., associated with cobaltite and pyrite.

PENNSYLVANIA — Carnotite, a hydrated vanadate of uraniun and potassium has been known for many years as occurring in Mauch Chunk, Carbon Co., Penn. The mineral occurs as yellow scattered streaks and patches on the coarse grained Pottsville conglomerate outcropping along U. S. 209, just a few hundred feet northwest of the bridge over the Lehigh River (to East Mauch Chunk). It is believed that the carnotite was first found when the rock was blasted for a trolley line.

Wm. S. Newcomet, M.D., 3501 Baring St., Philadelphia 4, Pa., was kind enough to send us a clipping from the *Philadelphia Inquirer*, (Philadelphia, Pa.) Thursday Dec. 18, 1952. The clipping refers to the Mauch Chunk carnotite deposit and is reprinted in full as follows:—

"Pennsylvania soon will have a uranium mine. The Lehigh Coal & Navigation Co. plans to put into operation a pilot uranium mine near Mauch Chunk, it was learned by *The Inquirer* yesterday.

"The mine will be a small one, according to Robert V. White, Lehigh Navigation president, designed to determine whether large scale production of uranium on the properties is feasible.

"We plan to dig one tunnel to begin with," White said, "and if the result is promising we may add another."

"Although the uranium ore in the area is of good quality, White pointed out geological tests on quantity have proved inconclusive.

"We feel the only way to determine whether a large investment by the company is justified is to dig a tunnel and find out just how much ore is available," he said.

"The bright yellow vein was revealed by a roadcut and has been under study by the Atomic Energy Commission and company geologists for some time."

The carnotite occurrence is of special interest to the Editor of R & M not only because he had visited it a number of times but also because his mining engineering experience started years ago with Lehigh Coal & Navigation Co.—back in 1916.

A letter, dated Jan. 15, 1953, from Walter Busch, 43-32 Elbertson St., Elmhurst, N. Y., contains the following paragraph.—

"Not too long ago I made a trip out to Mauch Chunk, Pa., and secured some very nice specimens of carnotite. Some one not too long ago dug a shallow tunnel into the outcropping evidently in search of richer (?) ore. Nice specimens can be gotten easily as the carnotite occurs in a conglomerate and in a shale which break easily."

The tunnel mentioned by Mr. Busch may have been dug by the Lehigh Coal and Navigation Co.

RHODE ISLAND—Not too long ago we made a visit to Brown University in Providence, R. I., where we examined the mineral collection in the Geology build-

ing. One of the many nice minerals seen was a dark green epidote xl, about 3 inches long, on matrix. The locality for this specimen was Pascoag, Providence Co., R. I. The label bore the name of A. C. Hawkins, the finder and doner and who is one of our loyal subscribers.

SOUTH CAROLINA—A few tourmaline xls with a fairly clear blue-green color have been found near Pelzer, Anderson Co., S. C.

SOUTH DAKOTA — A letter, dated Oct. 27, 1952, comes from David M. Seaman, 51 Ralph Mann Drive, Stoughton, Mass. One paragraph reads:—

"Recently I identified some small greenish-brown crystals from the Etta Mine near Keystone (Pennington Co.), South Dakota, by means of an x-ray powder photograph and their indices of refraction and they turned out to be scorodite. This is the first occurrence of this mineral in pegmatite which has come to my attention. The crystals were in a vug in quartz with stannite. Loellingite is also found at this locality and the scorodite would be a natural alteration product of that mineral."

TENNESSEE — Two interesting grayish-brown calcite specimens—one a coarse xline and the other coarse fibrous—have been received from William M. Johnson, RFD 6, Knoxville, Tenn.

"They were found on Mynatt farm in Grainger Co., Tenn., near Lea Springs post office, about 22 miles northeast of Knoxville"—from his letter dated Feb. 2, 1953.

TEXAS—Mrs. Ruby Renfro, 2901 Bomar Ave., Fort Worth 3, Texas, has sent in a number of small groups of limonite pseudo after pyrite crystals (cubes). The specimens are dark brown in color and consist of crystals ranging from ⅛ to ½ inches. The crystals occur in the Fredericksburg formation in Somervell County, Texas (southeast of the town of Glen Rose).

"We have collected thousands of these limonite pseudos from Somervell Co. We think they are very interesting." — paragraph in her letter dated Dec. 30, 1952.

UTAH—Two very nice xled halites from Promontory, Box Elder Co., Utah, have been received from Oliver A. Mason, 319-26th St., Ogden, Utah.

"Have shipped you two clusters of salt crystals (halite) that are from an abandoned salt bed at the S. P. Station of Promontory, at the south end of Promontory Point. This is where the S. P. Ry trestle starts across the Great Salt Lake and is known as the Lucin Cut Off. The location is in Box Elder County." — Mr. Mason's letter dated Oct. 7, 1952.

VERMONT—Nice pyrite cubes—some up to 4 inches—have been found in Hartford, Windsor Co., Vt.

VIRGINIA — There is always something new under the sun, even in minerals, as witness the following item sent in by I. O. Fitzgerald, 225 Piez Ave., Hilton Village, Va.

"I am forwarding you, under separate cover, six stones for your collection. It is a great temptation not to give any explanation at all, and just let your curiosity run wild, for I doubt these stones have been brought to your attention before. However, the following is as much information as I have about them.

"These formations were taken, in pairs, from the forward part of the brain cavity of small Virginia Croakers, (Micropogon Undulatus) known locally as "Hard Heads". These fishes are very common in the lower Chesapeake Bay area and make for very good eating. Similar stones, though of different shape and comparative size, (much smaller to the weight of fish) may be found in the heads of Sea Trout, (Cyroscion Nebulosus), known also as "Weak fish". The croakers, from which these stones were taken, weighed about a pound or a little less. I don't think it is very common knowledge these oddities exist. Just what their composition and purpose I am not sure.

"I would be interested in hearing your comments. Perhaps your subscribers might also be interested in these "Living-Fossils".

The fish "stones" are most interesting. They are calcium carbonates, white in color, about 4½ in hardness, and resemble milky opal in appearance. They are about ½ inch in size, some have a peculiar design imbedded in them (as if made by a seal), and should take a nice polish.

WASHINGTON—The following interesting item, dated Dec. 22, 1952, comes from C. H. Robinson, Sr., 623½-16th St., S. W., Puyallup, Wash.

"I can now really announce a new find of the so-called thunder egg, here in the State of Washington. I have sent one to Dr. F. L. Hess, a setting or two of them. As yet they do not show the colorful agate filling as found at Priday Ranch in Oregon but some of them do have the same structure or formation of the famous igneous nodules. They range in size from 1"x 1" to 4x6". Some are solid, some are hollow (geodes).

"One of our Puyallup Rock Club members discovered this bed in the White River in the locality of Enumclaw (King Co.), Wash. Earl Willson and his wife, both ardent rock hounds, deserve credit for the find as they have found the eggs in place or matrix. Mr. Willson's address is Enumclaw, Wash.

"Other finds have been made here. Wm. McAlister (Mgr. Cold Storage Locker, Puyallup, Wash.) found a thunder egg in the Puyallup River and presented me with a cut and polished half nodule.

"Joe Boone (Puyallup, Wash.) has secured good samples of these igneous nodules (thunder eggs) at Mud Mountain Dam on the White River above Buckley, (Pierce Co.), Wash."

WEST VIRGINIA — The following item is taken from the Jan. 1953, *Mineral Notes* of the Mineralogical Society of the District of Columbia (French Morgan, Editor, 2601 Brentwood Rd., N.E., Washington 18, D. C.).

"Our society is making a reputation for itself in the number of minerals first found in the various states. At the last meeting it was reported by Mr. Foster that he had found in a cave in Pocahontas Co., W. Va., a mineral that Dr. Milton of the USGS had identified as francolite, a form of apatite. This is a new find for the State of West Virginia."

WISCONSIN—The Montreal Mine, at Montreal, Iron Co., Wisc., is noted for a number of interesting minerals such as barite and goethite. The following item on goethite is taken from *The Conglomerate,* of the Michigan Mineralogical Society (Mrs. Lillian Mihelcic, Editor, 16543 Appoline Ave., Detroit 35, Mich.):—

"The Montreal Iron Mine has been the source of a beautiful form of goethite that we couldn't help but label "golden glint". It has a sparkling freshness that results in sheen from every angle with the terminations gleaming in an unusually silky pattern. Everyone falls in love with it. The Mortensons and Mollards obtained it at the source, ours came as a fortunate swap.

"The crested calcite rosettes from the area are not only beautiful cabinet specimens, but they also have a magnificent red fluorescence".

WYOMING — Very fine moss agate pebbles of gem quality occur near Cheyenne, Laramie Co., Wyo.

ALASKA — Large masses af grayish-black chalcocite have come from the Kennicott copper mine, Kennicott, Alaska. These masses of excellent gem quality have been cut and polished for ornaments, etc.

ARGENTINA—W.T.P. O'Gara, 1937 Hurley Ave., Fort Worth 4, Texas, has sent us some interesting pebbles which he had personally collected in 1952 while visiting Trelew, Patagonia, Argentina. One pebble contained datolite as small pinkish masses in amygdules of a brownish quartz. Another pebble contained small greenish epidote masses in a pale pinkish quartz rock.

Trelew is a small city that was founded by Welshmen in 1881.

ASCENSION ISLAND—A new mineral, a potassium zirconium silicate, and named dalyite, has been found on Ascension Island. Dalyite occurs as a rare accessory, about 0.2% of the rock, in medium-grained, pinkish-gray granite; it is in colorless crystals having a hardness of 7½. The name is for Reginald Aldworth Daly, Emeritus Professor of Geology, Harvard University — AMERICAN MINERALOGIST, Nov.-Dec. 1952, p. 1071 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

Ascension Island, of volcanic origin, is in the South Atlantic, and belonging to Great Britain. It has an area of 38 sq. miles.

AUSTRALIA — Nice xls and xled masses of native copper have come from the Burra Burra copper mine, Burra Burra, South Australia. The discovery of this famous mine was made by a shepherd in 1845.

BELGIAN CONGO — The following item is taken from *Mineral Trade Notes* issued by the U. S. Bureau of Mines, Washington, D.C. (Nov. 1952, p. 50):—

"Except for diamonds, the Congo is rather poorly mineralized in this respect. In Kivu, however, some small concentrations of rubies, white zircons, and pink and green tourmalines have been found, and some sapphires have been picked up. Topaz occurs in certain greisens of the tin area but no economic occurrence is known. Garnets abound in a number of metamorphic rocks around Boma, in the Katanga, and the Ituri. All varieties are known. Few of these are gem material, but they could fill abrasive specifications. Amethyst is known to occur in the Bas Congo, Kasai, and Kivu. Chalcedony, and sometimes, very beautiful agates are found in the alluvials along the rivers of Kassi, Kwango, and Moyen Congo. Agate occurs within the amygdaloids of a volcanic rock at Tshala on the Bushimaie."

CANADA — Some very interesting specimens of molybdenite (small flakes and masses) in dark reddish-brown massive garnet have been received from John W. Edwards, 305 Avenue Road, Toronto 5, Ont., Canada. The specimens come from Magnetawan (near Parry Sound), Ontario, Canada.

In his letter, dated Dec. 25, 1952, Mr. Edwards writes:—

"I am surprised to hear that you specialize in molybdenite (he learned this from our previous letter). After 25 years of intensive hunting for Moly (molybdenite), Canadians have given up in despair, because, although we seem to have Moly everywhere and often in rich masses, the deposits are all too small and so cannot compete with your Climax, Colo., mine. Our Moly has been a headache to all those who have tried to find a commercial deposit.

"As regards the Magnetawan Moly, I think that this is perhaps the most unusual of all. I have been within a very short distance of the deposit but was too busy at the time to go to look at it. I understand that it is in massive garnet as a magmatic-separation from the general garnetiferous-iron formation which covers several miles.

"As regards the name "Magnetawan", I don't think that this was derived from the presence of magnetite but, rather, from one or more of the different Indian names (given by different tribes) for meeting-waters or deep waters".

CEYLON—A new beryllium mineral, found as a cut gem stone, whose locality is unknown, but the shape suggested that the stone had been cut in Ceylon, has been given the name, taaffeite.

This a small (1.419 carats) mauve gem stone, supposedly spinel, was noted by Taaffe to show double refraction. It was examined by B. W. Anderson and G. F. Claringbull who declared it to be a new mineral.

The name is for Count Taaffe, "a brilliant if unorthodox Dublin gemologist," who first noted the unusual properties of the stone—AMERICAN MINERALO

GIST, March-April 1952, p. 360 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Michigan.

CHILE—W. T. P. O'Gara, 1937 Hurley Ave., Fort Worth 4, Texas, visited Chile last year and was good enough to do some collecting for us. From Santiago, the capital and largest city of Chile, he collected sand and pebbles from the Mapocho River which crosses the city from east to west. The pebbles are mostly amygdaloidal basalts whose cavities contained tiny greenish masses of epidote, also tiny whitish xls of heulandite. A dark green serpentine pebble was also included.

ENGLAND — Turquoise has been found in England, at the Bunny mine, St. Austell, Cornwall. Larger and better specimens have recently been found at the Gunheath china clay-pit also in St. Austell. These occurrences have been described by Sir Arthur Russell in the September 1952 THE MINERALOGICAL MAGAZINE (Dr. L. J. Spencer, Editor, 111 Albert Bridge Road, London, S. W. 11, Eng'land)—"On the occurrence of turquoise in Cornwall," pp. 909-912.

On page 909, Sir Arthur writes:—

"I have since found much larger and better specimens at the Gunheath china-clay pit, St. Austell, which lies some 670 yards south-west of Bunny mine. Traversing almost the full length of the pit is a very remarkable lode having a north-east and south-west direction, and being almost certainly a continuation of one of the Bunny mine lodes. A year or two back, this lode was even better exposed than at present (1951), the working of the pit having caused the upper portion to crumble away; even now, however, it is a striking object owing to the china-clay ground on either side of it having been washed away by the monitors. It appears as a jagged wall of rudely crystallized greyish translucent quartz with somewhat comby structure, traversing the kaolinized granite, the width varying from 12 to 15 feet, but apparently thinning out at the south-west end of the pit.

"Between the ribs of quartz there are in places both thin layers and thick impersistent bands of compact turquoise, the latter up to 7 cm. in thickness, which present a beautifully blue colour, especially when wet. In the open parts of the lode are considerable cavities lined with prismatic crystals of quartz covered with a layer of turquoise upon which are crusts of minute colourless or white needles and larger bladed crystals of wavellite, the remainder of the cavities being filled with white china-clay. Other specimens are remarkable in consisting of large masses of opaque white prismatic crystals of quartz cemented together by turquoise, these crystals when broken out leaving blue smooth prismatic casts. The turquoise also forms patches and veinlets in deep brownish vinaceous granular aggregates of cellular crystalline quartz."

A very nice specimen of the greenish-blue turquoise associated with crudely xled greyish translucent quartz from Gunheath china-clay pit has been sent R & M by Hugh A. Ford, 110 Wall St., New York 5, N. Y., one of our most active dealers. We hope Mr. Ford has more specimens to supply collectors, many of whom want turquoise from England.

In the Nov.-Dec. 1952 issue of R&M we printed on page 607 a letter sent in by P. D. Boerner in which he described his visit to the Warren (1½ miles east of Folkstone, Kent, England) which is a wild expanse of tumbled chalk between the cliff and shore, of interest to the botanist, entomologist and mineral collector. In his letter Mr. Boerner mentioned about landmines having been placed there during the last war, in case of an invasion, and how he was warned to keep away.

Another letter dated Jan. 31, 1953, has been received from Mr. Boerner whose address now is 3 Ashburn Gardens, Kensington S. W. 7, London, England. It reads as follows:

"Just a short note regarding the letter of mine which you published in the Nov.-Dec. issue of our friendly and instructive magazine. You will recollect where I mentioned about being warned to move away from where I was searching for

Pyrite Nodules. Well! to prove I was not exaggerating please note the enclosed clipping from the *London Evening News* January 27, 1953. (see below) I met Fritz Katz and asked him if the job of exploding the mines was dangerous but he reckoned that the armour plating on his converted tank was sufficient. I am glad to add that Fritz was not seriously injured but in any case Fellow Rockhounds (who are coming over for the coronation) intend to prospect the Warren, then let them take great care. Una (Mrs. Boerner) and I will be going there again soon and guess that we shall be very wary."

BLOWN UP BY MINE

Fritz Katz, a former German prisoner of war of Grace-hill, Folkstone, was taken to the hospital after a landmine had exploded under a bulldozer he was driving at East Cliff, Folkstone, today.

GREENLAND — A new mineral, named gunnbjarnite, has been found in Greenland.

The mineral occurs with calcite in veins cutting a basalt dike at Mt. Steensby in East Greenland. It is dark brown to nearby black, streak very light brown. Luster pearly on the basal cleavage. Cleavage basal micaceous, the flakes flexible and elastic in one direction, easily broken in the other. A hydrated iron silicate, member of the nontronite group.

Described by O. B. Boggild who named it for the Norseman Gunnbjorn Ulfsson, who is generally regarded as the discoverer of Greenland (ca. 900).—AMERICAN MINERALOGIST, Nov.-Dec. 1952, p. 1070 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

INDIA — Lewis Leigh Fermor, on a new chrome-garnet. GEOLOGICAL MAGAZINE, 89, 145-147 (1952).

A description is quoted from F. R. Mallet, *Mem. Geol. Survey India,* 5, 153-172 (1866) of material from near the Hanle Monastery, in Rupshu, Kashmir. Here chromite is cut by thin seams, both sides of which are coated with very minute crystals of a brilliant emerald-green color.

Fermor believes the mineral is a magnesium-chromium garnet (uvarovite is a calcium-chromium garnet) and suggests the name hanleite for the locality. The type material cannot be found and the locality is very inaccessible.

Inadequate basis for giving a new name to the garnet.—AMERICAN MINERALOGIST, Nov.-Dec., 1952, p. 1071 (Dr. Walter F. Hunt, Editor, University of Michigan, Ann Arbor, Mich.).

IRELAND—Very fine beryl xls oftentimes of a fine blue color and sometimes transparent, have been found in the Mourne Mountains, County Down, Ireland.

JAPAN — Very fine rock crystals enclosing green chlorite are found in Japan but the exact locality is not known.

MEXICO—William M. Johnson, RFD 6, Knoxville, Tenn., wrote us recently about a large deposit of almost pure sulfur having been found in the crater of a volcanic hill on Socorro Island, Mexico. Sorcorro is one of the Revilla Gigedo Islands.

The islands are in the Pacific Ocean about 370 miles off the west coast of Mexico (about 300 miles south of the southern tip of Lower California).

PHILIPPINE ISLANDS — A native sulfur deposit has been discovered on Camiguin Island, which is about 60 miles off the north coast of Luzon.

SCOTLAND—At the old copper mine at Sandlodge on Mainland (the largest of the Shetland Islands) very fine acicular crystals of malachite were once found. The Shetlands, a group of about 100 islands lie about 50 miles northeast of the Orkney Islands which in turn lie off the north coast of Scotland.

SWEDEN—A nice specimen of grayish compact fibrous picrolite (serpentine) with coarse xline black magnetite has

been received from Gerhard Koppen, Skanegaten 3, Nybro, Sweden. The specimen comes from the world's most famous mineral locality, the manganese mines at Langban, Wermland Province, Sweden.

WALES — Witherite has been found near St. Asaph, Flintshire, Wales.

Says We're A Friendly Magazine!

Editor R&M:

I am sorry that I am late in renewing my subscription for your fine magazine. When I received my first issue I resolved then and there that I could never be without R & M. Your field trip articles are terrific and your letters from subscribers are very interesting. I couldn't do without World News on Mineral Occurrences, or Mineral Shoppers Guide. To sum it all up, I believe your magazine is the finest, the friendliest, and the most interesting magazine on mineralogy that could be printed. Anyone who could find fault with such a fine magazine should have his head examined! Sometimes I will write up some of my mineralogical jaunts and send them in to you. That way I can do my part to keep R&M on top.

Keep up the good work!

From an admiring rockhound
Clark Coolidge
48 Brenton Avenue,
Jan. 3, 1953 Providence 6, Rhode Island

SAN DIEGO, CALIF., CONVENTION
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You'll see the largest and most important gem and mineral show this year when you visit San Diego in July and take in the spectacular event which will be a joint convention of the California Federation of Mineral Societies and the American Federation of Mineral Societies.

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For information write to: Edward A. Peterson, General Chairman, 4045 Poppy Place, San Diego 5, California.

PLAN NOW TO ATTEND.

MUSEUM GEOLOGIST TO STUDY PARICUTIN'S CRATOR

Several weeks of crater-hopping on the summit of Mexico's famous Paricutin volcano lie before Dr. Sharat K. Roy, chief curator of geology at Chicago Natural History Museum, who left Thursday, Jan. 15th., on the first of 16 expeditions scheduled for museum scientists during 1953.

Paricutin is the "new" volcano that first appeared, suddenly, as a few thin clouds of smoke from a depression in the cornfield of a farmer in the southwest part of the state of Michoacan on Feb. 20, 1943. From this fissure there poured a flow of lava that flooded a nearby town and necessitated the evacuation of several small neighboring communities, and which in four months had ejected material that built up into a volcanic pile or small mountain more than 1,000 feet high.

On a previous expedition while Paricutin was still in eruption Dr. Roy made preliminary volcanic studies and collected specimens, but of course at that time could get no closer than the base area. Recently the volcano became extinct, or at least inactive, and the present expedition affords the museum scientist his first opportunity to climb to the summit, now towering 2,000 feet or more above the surrounding country, and make observations right at the volcano's crater. It will now be possible for Dr. Roy to collect some types of volcanic specimens not available when he was restricted to the vicinity of the base. There is a possibility that Paricutin, like other volcanoes that have died down, might erupt again, so the present dormant period is regarded as an advantageous one for research.

AUSTRALIAN-AMERICAN MINERAL EXPEDITION

PART II

By WILFRED C. EYLES
Yermo, California

Well; I'm still here in Sydney, Australia, as there was absolutely no use trying to go places owing to the Christmas and New Year celebration. It was just about comparable with having our Fourth of July arriving with Christmas. You can imagine the mess. One could not possibly get a train even for a short distance. When I made inquiries for a train to Melbourne, I was told that I had to make reservations 14 days ahead. Imagine that! Just like having to make a reservation ahead to go from Los Angeles to San Francisco which is about the same distance as between Sydney and Melbourne, which are about the same in area as well as population.

Here in Sydney, it is nice and cool for summer (it is summer here now) but when one gets out in the country it becomes hot, much like our desert country in the United States, so really this is the wrong time of the year to go prowling out to Lightning Ridge for opals or any other out of the way place.

There are two fine museums here in Sydney, as I had mentioned in my previous letter. One is the main museum where all things of historical value, including minerals, are housed. The other is a mining museum, covering an entire city block in area, which has a wonderful display of minerals from everywhere in Australia. One bad feature about this mining museum is that this grand building with its big array of fine minerals is located down near the docks, underneath the big new bridge which connects Sydney with North Sydney. So the interest and attendance here is practically nil. The main museum being uptown in a fine location gets very fine patronage.

Minerals in Australia which enter the building trade must be enormous for every building is some kind of brick, the roof in every case is of beautiful red tile making a grand sight from the air.

The geology here in Sydney and the surrounding country is sedimentary. Great sandstone cliffs stand out around the most beautiful beaches I've seen anywhere in the world. Inland as far as I've gone is sandstone, some shales intruding here and there. Many buildings are built of sandstone blocks and these with the brick houses are of a very durable nature—even the old time buildings in the slum areas are built of sandstone, many over a hundred years old and still in good condition.

Food here is about half the cost in the U. S., so are hotel accommodations, etc. Travel also is much cheaper.

—Kings Cross, N.S.W., Australia—Jan. 7, 1953

(To be continued)

Introduces R & M To His Friends!

Editor R&M:

Please continue my subscription. . . it's wonderful. Also, two friends of mine want to get in on a good thing so here is $9.00 as payment for my renewal and their subscriptions.

Seth H. Smith, Jr.
2301 North Bell Street
Kokomo, Indiana

BRADLEY PURCHASES LAPIDARY EQUIPMENT CO.

Mr. R. D. Bradley, who has been associated with the Lapidary Equipment Co., Inc., of Seattle, Washington, as a stockholder and officer since the business was founded, announces that he has purchased the stock of Karl J. Hillquist, former president of the company. Mr. Hillquist has retired from active business in the lapidary field and plans to spend some time in traveling.

Mr. Bradley becomes president of the Lapidary Equipment Company, Inc., Mr. M. R. Bailey, who is a stockholder and who also has been with the organization as an officer and director since its beginning, becomes vice president, and Mrs. Lavonne Forrest assumes the responsibilities of secretary and treasurer.

The Lapidary Equipment Company are well known manufacturers of lapidary equipment and have just recently announced the addition of two new items to their line of lapidary equipment: their "Trimster" trim saw which features a baked porcelain enamel top, and the new "Klimax" lapidary machine which saws, grinds, sands and polishes.

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

Mineral collecting is becoming more popular by leaps and bounds. People from all walks of life are joining Mineral Societies who report that memberships have, in some cases, jumped ahead by 50 to 60 per-cent for last year. It is interesting to note that the many phases of the hobby are well represented insofar as individual interests are concerned. Perhaps the lapidary end has an edge on all the others. The collecting of crystals and crystal groups, too, is very popular. Probably due to the fact that societies recognize the individual taste, few members lose interest. We are sort of happy about the trend and hope it gains and gains as time goes on.

There is seldom a time when conversation dwindles where two or three collectors are gathered. Put three mineral collectors in a bag, shake them up and dump one out. . . it is ten to one that the other two will be so busy discussing minerals, the third will not have been missed. Collectors never founder for things to talk about. Subject matter seems endless. There are so many things to try to do, so many places, that there just does not seem time enough for everything. It's great!

Recently,we heard about a woman who fashions jewelry from silver. Our first thought was whether or not she used stones in her work. Reverse the hearsay situation and the obvious question could be; "You say he polishes stones? I wonder if he uses silver or other metals in his hobby?" According to the catalogs we have been receiving lately, the lapidary is not getting the most from his hobby unless he does use the metals in one way or another. It is our opinion that fewer stones should be cut and polished. . .and done as well as possible, then mounted in some way and not just in endless array in trays, even though this is a grand way to present the art of the lapidary. It is possible to make an attractive mount for a stone without the use of metals, but this is an exception. Lapidary supply dealers have practically everything the craftsman needs. Metal wire, rounds, flats, stamped, molded. . . anything your heart desires is advertised in ROCKS AND MINERALS.

We wonder how many collectors have really nice asbestos represented in their collections. Mr. W. M. Johnston of the Atlas Asbestos Company, North Wales, Pa., sent us a very attractive specimen of the famous Quebec, Canada, chrysotile asbestos. This type is extremely fibrous and has a very lovely golden-green luster. Thank you, Mr. Johnston, for sending this very nice specimen. So many collectors take asbestos for granted (like coal) and do not attempt to add really nice specimens to their collection. Why not send to your favorite dealer for a nice specimen of this type asbestos? Mr. Johnston explains that the raw material is shipped to a southern branch of the firm where it is spun into yarn then shipped to North Wales where it is woven into textiles.

Florida has always intrigued us, mineralogically. Tampa Bay's silicified (chalcedony) coral, calcite clams, sharks teeth, and shell rock are a few items to be found in collections. The very excellent "World News on Mineral Occurrences" department of ROCKS AND MINERALS never fails to mention some item from this state. Captain F. J. Smith's account of big and little fossils of teeth, bone and horn found there attest to the fact that Florida does offer extremely interesting collectors' items. Those interested should contact Capt. Smith at Mayport, Florida.

While we are still on the subject of fossils, might we suggest that some of

the best trilobites ever offered, among other things, are still carried in stock by Ward's of Rochester. Of course if you want a complete dinosaur, they will crate you one and ship it with extreme care. Whether it is a small fossil or a gigantic mineral specimen, this well-known firm will see that you get it in the same condition that it was in when it was carefully readied for display at their establishment.

Ever wonder what to do with a pretty chunk of mineral that might be too pretty to grind and polish? A few months ago we observed a collector pick up a large chunk of rock in which a sizeable vein of prehnite promised a good specimen after trimming. Several weeks later we noticed a flat section of lovely prehnite suspended around the neck of Mr. Otto Bauhof's better half, Helen. The greenish grey flat section was simply fixed within a rim of silver wire and suspended on a chain, unspoiled by grinding or polishing. Good prehnite is becoming more difficult to come by these days. But some dealers have it in many sizes and price range. John S. Albanese, of Union, N. J., can supply this fine mineral as well as other choice specimens. Look up his ad in these pages.

Did you know that Schortmann's will send you their fluorescent bulletin for the asking? This firm is very proud of their fluorescent selection and we know why, for we have seen many specimens from their shelves. None but the best and it does not cost a fortune to get nice sizeable chunks of brightly fluorescent minerals from Schortmann's.

A few years ago, we received a nice slab of deweylite-magnesite in which the reticulation of both minerals were equally dispersed in brown and white webby stringers. When this specimen is shown visitors, the frequent question is whether the white or the brown is deweylite. A good long wave lamp establishes the deweylite immediately. It is a carbonate which reacts somewhat like aragonite and in many types more strongly than most aragonites under long wave lamps. Not all deweylite will fluoresce. There are many types of long wave lamps offered for sale in ROCKS AND MINERALS issues. Why not advance beyond the Purple X lamp with its very limited range and get the best out of your long wave specimens?

Several issues back, in the November-December issue to be exact, we noticed the locality name Mapimi, Mexico, in the ad placed by Hollis Page. This ad listed among other well known Mapimi specimens, blue adamite. Blue Yet? It must be lovely. Interested?

Several requests came in recently for information on availability of wholesale Franklin,N. J. specimens. We stick our neck out when we say that most advertisers who stress New Jersey minerals can be contacted by dealers favorable for quantity rates. Look up the ads in this issue and back numbers for dealers's listings of Franklin minerals. Beautifully fluorescent clinohedrite, margarosanite, barite, wollastonite as well as the famous typical willemite and red fluorescent calcite are still to be had in quantity though we predict it will not and cannot last this way forever. Margarosanite is the least plentiful. Its fluorescence is not always a strong blue under short wave and most often shows a pale lavender.

LIFE MAGAZINE'S colorful illustrations depicting the end of the World, some weeks ago, were extremely well done. The whole idea was most awe inspiring. We shudder to think of it . . . not because of the great heat and melting mountains—our idea is that man will have no part in this great event. He will long since have killed himself through wars. What about the beautiful crystals formed in the slags of the hills? No man will be around to collect them, admire them, study them or use them. Shucks. Flea-brained dictators and would-be World rulers, such as we have with us today, in strong but backward nations, may learn the futility of their ideas and forced isms. We still cannot understand why, of all the learned people, some scientists in this country and abroad, play along with the abominable IDEA. 'Nuff said.

The study of uranium minerals and other radioactive materials is on the upswing. Geiger counters of all types are selling fairly fast. Those who would like to try this phase of the hobby without spending too much money would watch the ads in ROCKS AND MINERALS. There are serviceable Geigers for less than $25.00 and for those who would merely toy with an idea, there are those modernized spinthariscopes which need only a good chunk of darkness to work in. The Pacific Transducer Corporation is offering this instrument for $5.00. Ores can actually be classified as strong or weak with this neat little gadget. See their ad in the November-December 1952 issue.

Mimetite is a very lovely mineral crystal. Whether for the microscope or for the mineral cabinet, mimetite and associated crystals make a showy display. The Frey Mineral Enterprises of Eureka, Nevada, have some choice specimens to sell. From the prices quoted, it is obvious that this firm believes in the small profit-fast turnover principle of doing business. Investigate their ads in the November-December issue of 1952. There may still be some fine specimens left.

Generosity is a nice word. Our continued assertion that dealers are unusually generous was proved several times last year by reports to this department. Such reports are, indeed, gratifying and should be passed on to readers of this magazine. Those who might hestitate to send an order via the mail should take note. Quite often, a dealer's selection is better than that made by the buyer on the spot.

Some weeks ago, we received a nice letter from Ford E. Wilson who has one of the top sand collections in the U. S. Mr. Wilson, who lives in Portland, Oregon, has started to assemble a micro crystal collection, using some of the famous Oregon zeolites as a starter. His lament (we cry on each others' shoulder) is that so few dealers sell micro mineral material, as such. However, it was pointed out that a great many dealers do have thumbnail specimens to dispose of for the microscopists. Many of our own interesting micromounts were secured from thumbnails, though not all of them contained crystal presentations tiny enough for a good mount. It is not necessary that tiny crystals or groups in cavities be invisible to the unaided eye, but they should be of a certain smallness. Anyone who wishes to start a micro collection and has little with which he might exchange successfully. . .at the start, should contact dealers and state their needs. We forwarded the names of the few people who do sell micros, along with a few names who may be interested in a swap. Happy hunting, Mr. Wilson.

Industrial catalogs have always intrigued us. Many pictures and descriptions of industrial equipment have been noted as having a definite application to the lapidary art. There are belt sanders, small drills and many other items of interest to say nothing of small parts barrel finishing machines. At last, an enterprising dealer (Guild of Franklin Park, Ill.) has experimented with a barrel-finishing machine with no little success on stones. Time saved and the polish achieved on fairly large batches of like material makes barrel-finishing of great new interest to wholesale and retail lapidaries, and amateurs, too, who like to experiment with new methods. Those interested in this method should contact this department for further information, or see Guild's ad in the January-February 1953 issue.

Speaking of polishing, one does not have to be interested in the slabbing of minerals or the cutting and polishing of stones to enjoy certain types of slabbed mineral specimens. There are more than a few mineral specimens which cannot be of interest to any collector until they have been sawed or slabbed to reveal the hidden beauties. Of a certainty, there are certain banded rocks such as some that may have originated in Franklin, N. J., that are beauties just as they are and without the benefit of a good short wave lamp. We are thinking of a rhodochrosite, at the moment, which is pretty to behold without slabbing, but a hundredfold prettier when slabbed. It is Patagonia rhodochrosite and can be obtained from Mr.

Eldon E. Soper, 433 S. Central Avenue, Glendale, California. Mr. Soper advertises in these pages. Fifty cents an inch, or $4,00 per pound, is about the right price for this beautifully specialized pink mineral. Mr. Soper sent us a beautiful slab of this banded pink mineral along with a chunk of "Burnite", a solid blue and green banded copper mineral. We expect to see some copper show up when we cab this material as Mr. Soper suggests. Proper orientation will show it.

On December 12th, last, Astronomers at Carnegie (Washington) announced the discovery of a new baby. It is another moon shining down on Jupiter. Its diameter is only about 14 miles so do not try to see it. If you do see it on a photographic plate made with a powerful telescope, you will still have to take the astronomers' word for it that the little fellow travels from east to west, an altogether contrarywise motion from the usual west to east route. Flying Saucer enthusiasts with their usual imagination, will claim that the people of Jupiter have succeeded in launching a space platform. We wonder! We mention this just in case you like to let your minds wonder. . . . real far.

Last year, we mentioned that benitoite was being mined in California. We now know that the venture was unsuccessful although a supply of the crystals was brought out and offered for sale by Benitoite Mines whose ads have appeared in these pages. There may still be a few stones left in stock. When these are gone there may never be any benitoite offered again. Rough and specimen grade pieces have been sold. We have a feeling of thankfulness that we have a nice specimen in our fluorescent display.

An automobile without a windshield wiper is considered incomplete today and in most states it is illegal to drive a car without one. . .two are even better. A real honest to goodness collector of minerals is complete if he or she owns some sort of eye aid such as a 20X lens of even a 10X. A good low-power microscope in the study-room is even more sensible. We doubt if a collector could be termed far advanced if he tried to get along without even a 10X lens or some sort of eye-aid more powerful than a fifty-cent magnifying lens. If you want to get a good optical aid, get in touch with a real friend of the hobbyists, Mr. Harry Ross of 70 West Broadway, N. Y. 7, N. Y. He has microscopes of all kinds and he is best able to fit that pocketbook.

Many an odd request comes our way. Some weeks ago we were asked to rough-out several egg-shaped pieces of that brightly fluorescent cave onyx (calcium carbonate) from near Temple, Pa., the source of which is now under about forty feet of water. With some misgiving, we tackled the job and the results were very gratifying. It seems that our friend knew exactly what he was after. Sphere cutters take note. For some reason the naturally perfect shape of an egg (hensize) is ideal for form. The chicken thinks so anyway. Now we are shaping some up and polishing them in materials ideally suited for the purpose and one in particular, made from natrolite, is a beauty.

Dealers do not have everything. We know how true this is when we try to get somewhere in guiding buyers who want next to the impossible. However, we have one dealer in mind who does have an unusually complete list of gem minerals. It is the Southern Gem and Mineral Co. of El Paso, Texas. To mention one item, their Baroque stones come in 50c and $1.00 sizes and highly polished. Interested?

If any collector or dealer who has, or knows of the existence of beach pebbles containing natrolite and or thomsonite and which show colors ranging from white, green, grey, tan, pink, or what have you and in size approximating one inch round, please contact this department. The matrix may be greenish and brownish such as those found on the shores of Lake Superior or wholly made up of natrolite such as those found in river-beds in Oregon. Youth must be served. One hundred and eleven Boy Scouts require one such specimen each for a mineral project and the order, if filled, will be paid for by a collector who is very interested in Scout work.

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
Certified Gemologist, American Gem Society.
1107 S. Oakcrest Road, Arlington, Va.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

FACETING MACHINERY

Introduction

In a previous article the machinery for cabochon work was discussed; much of the design and mechanical considerations apply to faceting machinery.

Dop Sticks and Dop Stick Holders

Early in the cutting game we are faced with the decision as to what kind of equipment to buy for faceting. What is best for ME is the question each prospective purchaser asks. We have heard a great deal about the pros and cons of the mechanical head versus the traditional hand-held but what exactly are the considerations to study before deciding which method to employ?

The jamb peg and its variations is an extremely old method of faceting whose initial use is shrouded completely by the mists of time. In its simplest form and one which still exists today in Ceylon, it is nothing more than a pointed stick upon which the stone is mounted. The stone is then held against a whirling lap for the grinding and polishing functions. There is no jamb peg or backboard so that the entire process is truly "freehand". This oldest and crudest method is mute testimony to the extremely high skill acquired by the primitive cutter, since in spite of the obvious handicaps, his stones still find a ready sale throughout the East and to a lesser extent in the West. Great accuracy is not an inherent feature however, and the general reputation for poor cutting which attaches to the Singhalese is the outgrowth. Such cutting in Ceylon is generally in the hands of Moslems who refuse to make large concessions to improved materials and techniques preferring instead to continue as their fathers before them. Indirectly, by this attitude, they assure themselves an occupation. Most Western gem buyers would dearly love to buy all the rough and ship it home where the greater skill of their cutters would turn out high class gems. It would only be a question of time, then, before the native cutters would be greatly reduced in number as their supplies of rough diminish. As it is now, each native finding or buying a stone of promise hastens to a cutter who can easily open up the frosty exterior to reveal the prize within. A fine stone poorly cut can still be sold at a fat profit under such circumstances, both to the owner and the cutter. If it were sold abroad, then the lure of this profit would no longer obtain.

The next step beyond the completely freehand method is anchoring the end of the dop stick into some firm object so as to fix the angle of elevation. This is conveniently done by means of the jamb peg. Essentially the peg or board is penetrated by shallow depressions whose number and distance apart provide a large variety of angles. The lapidary selects one which is expected to do the job and from that point on concerns himself with the setting of the angle around the periphery of the gem which is done by his fingers. The above improvement is basically the first and last that has been made in the jamb peg technique in hundreds of years. The persistence of this method is not due to the stubbornness of the lapidary as is the case with the Hindu but rather stems from the fact that certain advantages accrue once the technique has been mastered. I now propose to dwell a few moments on these advantages.

Although jamb-pegging requires great skill and much practice to develop this skill, once mastered it results in extremely

fast processing of gemstones. Furthermore, it is completely flexible allowing the most rapid correction of errors, the most rapid and economical re-cutting of chipped and worn stones, as well as realignment of facets to produce the greatest return of weight if that be an essential objective. For stones of odd outline such as hearts, marquises, pears, ovals, pendant stones, etc., the speed of processing is scarcely diminished over that for cutting rounds or squares or rectangles. For large step cut stones however, the jamb-peg lapidary must truly be proficient to achieve parallel facets of the same width and matched perfectly crown to pavilion.

Furthermore, the jamb-peg system lends itself readily to mass production in which a battery of specialized personnel set up a "line", each in turn doing something to the stone until it is completed. Obviously there are no screws to unscrew, no adjustments in degrees of arc or elevation, no interchanging of laps, etc. etc. A several carat stone is turned out in minutes instead of hours as is usually the case with most employers of a fully mechanical head. It is true that most well-skilled amateurs using mechanical heads can turn out stones of better geometric quality than professionals but this again is not completely in disfavor of the commercial methods.

Although many commercials can be extremely accurate in their cutting, high standards are not particularly desired except when truly fine rough is being cut. Thus most top-notch rubies, sapphires, and emeralds and diamonds, of course, are entrusted only to the first team and are second to none in finished quality. The vast majority of stones are cut on the basis that time is money and therefor show evidences of the haste with which they were cut. It is not possible to require greater care of these men since the vast majority of their output is purchased by an undiscriminating clientele who are unwilling to pay premium prices for marvels of exactitude but are willing to pay ordinary prices for gems that sparkle.

A brief reflection on how the jamb-peg works will convince even the inexperienced that it is no mean feat to delicately and accurately place small facets symmetrically about the stone. There obviously must be a keen vision, a nice sense of proportion and a steady and sensitive hand whose nerves work as one with the brain to telegraph information on the "feel" of the facet. This sort of skill is not acquired overnight; certainly a duffer can turn out acceptable step-cuts in a short time but the execution of the more complicated shapes can only come from much practice.

Possibly more than any other, this latter consideration has given rise to the next obvious improvement, if it can be called that, in the jamb peg method,—that of fixing the rotation of the dop stick and thus eliminating one more source of error (and skill). Following hot on the heels of this innovation was the idea of putting in an angle "stop" so that overcutting of facets becomes difficult. With these two additions we now have the essentials of the modern facet head—a more or less completely fixed dop-stick, mechanically set. Obviously much of the skill has been removed and hence the need for long and painstaking schooling in the art. The development of the modern rifle over the old blunderbuss has followed somewhat the same history especially when mounted in a fixed platform.

Modern variations in the jamb-peg technique include a peg with holes or grooves, adjustable up or down, while the dop stick itself can have a fin or pin on the end which can fit in a receptacle or groove on the jamb-peg part. One device has a flattened fin which engages a groove on the jamb-peg; since the fin is not free to turn it is a "mechanical" rather than a "freehand" type. Another has a receptacle on the stand rod in which the pin on the end of the dop stick engages a groove like the bearing and trunnion of a gun carriage. This is also "fixed" rather than "freehand." Other types of "loose" handpieces are equipped with plates on their ends which rest against another fixed plate and thus again cannot be considered "freehand." All of these devices extol the

virtues of "free" handpieces but the author has never been able to see the advantage of such arrangements and indeed can see many disadvantages.

Finally the last and most popular modern system employs a head in which the dopstick is firmly fixed and freed to swing up and down, with or without a stop to prevent overcutting of facets. A quadrant calibrated from 0 to 90 degrees is placed on the center of dop stick arm axle and a pin fixed to the arm points to the elevation angle in degrees. Angle of rotation around the girdle of the stone are fixed by various methods. The most popular and the most effective is that employing a gear-toothed plate calibrated in equal divisions of a circle and attached to the rotatable member of the arm holding the dop stick. A tooth or pin attached to the fixed part of the housing engages the appropriate notch on the gear wheel and thus keeps the dop stick from rotating. The toothed gear to best serve its function, should be cut most accurately and the gullets must taper from top to bottom to take up wear automatically. If the plate develops slack, the facet cut on the slack setting can become rounded. If the teeth are not evenly spaced, the accuracy of the entire stone will suffer and the exact matching of the back facets to the front the surface of the polishing lap.

With this type head a fine or "micro" adjustment is needed on the stand rod so as to provide all degrees of elevation. This is particularly important when joining the facets of brilliant cuts and, in any case, for exactly matching the ground facets to the surface of the polishing lap.

Angle Stops

"Stops" for avoiding overcutting are generally a snare and a delusion since enough play is usually present in the facet head and arm to permit an extra amount of pressure of the hand to overcut any facet. To work at all the pressure applied by the fingers of the worker must be the same for all facets in a series and all of the same size (assuming that the gem material is absolutely uniform in all directions, a condition only met in amorphous or cubic minerals). The stop is convenient for brilliants since its use DOES prevent GROSS errors nevertheless, the *exact* alignment of facets is obtainable only by inspection and individual attention to each facet in turn.

Splitting or Skewing

Some heads incorporate devices for "splitting" the distance between teeth on the gear to give a much greater variety of settings. The maximum number of teeth available on ordinary gears is either 64 or 96. A large number of rather complicated cuts can be achieved with these gears but they cannot afford all the variations demanded even by a relatively simple oval stone, not to speak of hearts and marquises. Therefor, these more difficult cuts can only be made by "splitting" the facet nearest to the desired final position. One head currently available does this by rocking the entire movable part with two set screws, one of which is backed off to the desired amount and the other locking the new setting in place. If such devices are intelligently used, they can provide the infinite variety of settings necessary to cut all geometrical shapes. Their adjustment feature can also be used to advantage to insure absolute coincidence of the facet upon the polishing lap, either for first polish or re-polish. There is just one rather enormous fly in this ointment however whose omission by myself would be a dereliction of duty, — the cutting of a stone involving a large number of oddly-spaced facets, i.e. hearts, ovals, pears, marquises, etc., involves keeping record of all the settings used so that facets can be polished later on these exact settings, but also the TIME involved in making all the adjustments is simply enormous so that the amateur is faced with the prospect of spending the vast majority of his faceting hours in the pursuit and recording of the elusive settings which will give the exactly right facet required to cut the odd shape. The great, nay-*very great,* advantage of the loose dop stick of the professional is at once apparent.

As a result of the complications attending the cutting of stones departing from simple symmetry, most amateurs turn out a vast number of brilliants and step-cuts

but very few ovals and marquises.

Dop Sticks

Mechanical dop sticks are generally short pieces of metal about 2" in length and ¼" in diameter. The terminations are machined to roughly the shape of the preform they are expected to hold. There are rounds, vees, and flats in different sizes with suitable depressions to hold the points of the preforms. Those made of steel are by far the best since their tendency to rust is more than outweighed by their advantages. These are: low rate of heat conductivity which permits the dop to be handled on one end whilst the other is very hot, greater hardness which prevents deformation by set screws and allows them to be scraped by steel knives without damage, greater strength which means greater rigidity especially with very small terminations needed for very small stones, "springiness" so that they will not easily be deformed at the thinner ends. Brass and aluminum are not as good for dops since they transmit heat so fast that the fingers can get burned easily while the business end may not be heated enough (a highly important consideraton also when re-dopping), they cannot be scraped clean of wax by steel implements without severe scarring, they cannot be used in very fine terminations because of their weakness, they are useless in any setscrew arrangement since the steel of the setscrew will bite into them.

Transfer Jigs

Transfer jigs are essential for highly accurate turning around of the stone. If properly used, the stone will be fastened to the new dop stick along precisely the same axis that it left the old. Jigs must be fast in operation since any fiddling with thumb screws or awkward insertion of dops is at the expense of rapidly cooling wax. The best types are those which are open in front so that dops can be inserted directly. Face plates for aligning a stone while the wax is still tacky should be generous in size to accommodate large stones. Dop sticks with vee grooves in the shank are touted as permitting the dop to be replaced exactly, if it should be removed before all work is complete. This sounds fine in practice but is merely an unnecessary refinement.

Stand Rods

Stand rods for holding the facet head should be accurately ground to final dimension and must be at least ⅝" in diameter. Because considerable stress is placed upon this member it must be rigid. The slide itself should fit very snugly on the stand rod with very little play. It should incorporate some device for making minute adjustments in elevation, the "micro" feature discussed before. Once set it should not creep or fall. The best device is a nut which has a fine pitch thread, in operation, a flick of the fingers is enough to change the elevation quickly. The head itself should of course be quite free to swing back and forth across the lap so that all portions of the lap may be used and all directions of cutting employed against the facet as is sometimes necessary with certain difficult gems.

Index plates, whether gear-toothed or pin type, should be quickly readable without craning of the neck.

Use of Non-Corrosive Metals

Much ado is raised about the employment of non-corroding metals in the construction of a facet head, in some respects this is as silly as the advertising about pens that can write underwater; it is presumed that most faceters will not ordinarily keep everything sloppy with water or employ their machinery in the shower stall. Faceting is a very clean operation and very little water gets on anything except the stone and the lap plate. For this reason, the holder of the dop stick can perhaps be profitably made out of stainless steel or monel, but the other parts need not be. For those who intend to use loose carbo grits to do all their cutting with, the non-corrosive construction may be of value in that the entire head assembly can be placed under a stream of water to wash off grits before going to polishing. If, however, the use of the popular diamond impregnated laps for grinding is contemplated, the non-corrosive construction is certainly not necessary. Most of the "non-corrosive" metals used in modern equipments are unfortunately

made out of brass or aluminum; both are not particularly strong in small sections. Where strength and rigidity are required, it is hard to beat the standard alloys of iron. Furthermore, when cutting a large stone of 100 carats or so, which some day each amateur tries, the stresses imposed on the equipment are considerable and it would be better to have good old steel to take the gaff.

Dop Stick Handpieces

In general there are two methods of holding the dop stick in the receptacle provided for it: collet type chucks and set screws. The collet type depends upon friction alone to hold the shank of the dop. Unless considerable force is available in tightening up it will slip, probably at a most inopportune time. The set screw type is far more certain but cannot be employed with brass or aluminum dops since the screw will incise and deform the metal causing disastrous difficulty in the removal of the imprisoned dop stick. For this reason (and others) the steel dop is the only dop to use with a set screw type closure.

Miscellaneous

Index plate triggers should be made of a hard metal so that any wear is borne by the plate itself and not the trigger. If the trigger wears it may get so small that it doesn't seat well even in a new plate. Most manufacturers make extra plates but you may have a little trouble getting an extra trigger. Quadrant pointers should be sharp and pass closely to the calibrations to avoid errors in parallax. Since it is mechanically difficult to bore a hole precisely in the middle of the circle on which the elevation quadrant is inscribed, some error may be found in the quadrant reading. The dop arm is calibrated by placing it in a 45 degree position in relation to the master lap, then noting if the pointer reads the same quantity. If it does not, bend the pointer slightly until it does. Any error now will be at the extreme end of the scale where it has little effect, most cutting being done in the neighborhood of 45 degrees.

It is very desirable to have some friction on the pivot of the handpiece so that the dop arm can be left suspended in midair without crashing down upon the lap if inadvertently dropped. This saves many a stone and also enables both hands to leave the work at any time. The friction should naturally be smooth and not jerky.

System Alignment

It is essential that the vertical track of the swinging dop stick arm be perpendicular to the lap, in fact it must be perpendicular no matter WHERE it is placed upon the lap. In practice this is very difficult to achieve unless both the stand rod and the master lap assembly are mounted on a common rigid flat metal bed plate. The axes of both the lap axle and the stand rod are set up perpendicular to the bed plate and hence parallel to each other. Next the facet head is placed on the stand rod and the swinging arm is moved up and down alongside a machinist's square resting on the master lap. If the head is accurately machined, the dop arm will travel parallel to the edge of the square, if not it will touch at one point and diverge at the other extreme. It is necessary to secure the head so as to prevent it swinging sideways during this test. For heads having "splitters' or "skewers", these attachments are adjusted until the head does swing exactly up and down, then the skew pointer is twisted over to read zero and the head is then in alignment. For heads not equipped with these devices, it will be necessary to twist the assembly at some convenient point by a trial and error method until the tracking is straight up and down. The elimination of these errors is tedious and troublesome but will pay in increased accuracy.

The alignment of the stand rod to the master lap assembly is feasible by the following method. Set the stand rod as close to the master lap as possible, lock down. Now, upon the master lap rest a machinist's square so that the vertical edge is near the edge of the lap. Stand off to one side and move your eye over until a narrow slit of light can be seen between the edge of the ruler and the stand rod. Repeat from several divergent positions on the master lap so as to get a crossing set of "sights." If in any of these sight-

ings the slit of light is not the same width at top and bottom it shows the lack of alignment. The master lap is shimmed at its point of attachment until no error is evident when the hold down screws are tightened. This is a very sensitive test but to be effective the eye must be back from the ruler's edge at least a foot.

Master Lap Assembly

The master lap assembly must be constructed strongly and rigidly. The best types have an upper and lower bearing, the upper being capable of receiving thrust. The bearings should be of high quality, grease sealed. The remarks given in the previous article on shafting are applicable here, but since greater accuracy is demanded, even more first-class machine work is demanded. The master lap must be absolutely flat and centered so that no shimmy is noticeable when turning. It should be conveniently removable from the shaft in order that the splash pan can also be taken off and cleaned periodically. The master lap is best attached to the axle by a simple taper fit, that is, the end of the axle protruding from the upper part of the table is tapered toward the top and the master lap itself has a corresponding tapered recess machined into the bottom. The lap is then removable by simply lifting it off with a wobbling motion. In operation, this type of lap is rigid and laps can be placed upon it without tilting. The center of the master lap is tapped for a hold-down bolt. The bolt is fitted with conventional threads and serves merely to press the lap in use to the master lap. Sliding is prevented by the friction between the two.

Laps

A host of materials have been used through the ages for cutting and polishing laps: iron, steel, bronze, tin, typemetal, lead, zinc, brass, copper, typemetal and tin, britannia metal, etc. Among the non-metallics may be mentioned: wood, plywood, leather, paper, lucite, phonograph records, pitch, wax, cloth, etc. Iron is still used for polishing of diamonds and for the cutting of other stones with loose grit. Grits are also handled successfully with steel, lead, typemetal and other soft and cheap alloys. These latter metals retain grit and therefore cut quite well for a long time on one charge. The grit breaks down quickly however and the cutting action becomes progressively slower and slower. Brass and copper have been used for polishing corundum with fine tripoli or diamond powder. Tripoli in conjunction with a lead or typemetal lap is also used occasionally for polishing sapphires. Very fine diamond grit on tin is generally conceded as best for sapphires and chrysoberyls. Spinels do well with Linde A on tin. Tripoli on the softer metal laps is an old favorite for polishing quartzes.

The "standbys" that are most popularly and successfully used today however are: tin and lucite for polishing; diamond impregnated copper for cutting. To these may be added several wooden laps which are peculiarly successful for soft and scratchy materials and also wax coated cloth laps for the same purpose. The powders generally used are Linde A or tin oxide on tin, and cerium oxide on lucite. Tin oxide on lucite is somewhat slower in action than cerium but may be less prone to develop scratches. In general, it may be safely said that if cerium on lucite won't polish it, Linde A on tin will.

Copper laps impregnated with diamond are sold at fancy prices in reflection of the costly ingredients and the labor involved in their preparation. The amateur will do well to charge his own laps, not a particularly difficult feat. The only real precaution to observe is to obtain the most carefully graded powder available from a source of unimpeachable integrity. One or two large particles in a batch of fines is enough to raise continuing havoc in cutting, and if premium prices must be paid for the best, it is best to get it and pay cheerfully.

An end-grain wooden lap even if bumpy, is the neatest trick of the week when it comes to polishing girdles of faceted stones. Used with Ruby powder which is a lot cheaper than Linde A, it partially cuts and polishes the girdle so that it is slightly rounded. This rounding is much desired by jewelers who have ex-

treme difficulty in setting stones which come to sharp knife edges on the girdle (without chipping). The author has had a jeweler connected with a large and important firm tell him that knife edged stones were customarily rounded off in the shop so as to avoid chipping in the setting process!

A smoothy finished wood lap is useful for putting a superb polish on apatite and other scratchy stones. Linde A or tin oxide are customarily employed on such laps. By using wood, apatite can be given a polish no less fine than that given quartz or beryl. Large tables of tourmaline, diopside, beryl, etc. can be easily and positively polished on wood. The roundness of the edges is removed by cutting in the crown facets later.

Pre-Formers

Pre-forming rigs may have some value but do have some serious drawbacks. A pre-former which sits upon the pan in a fixed position tends to develop grooves in the cutting lap since the stones ordinarily strike the same place each time. The cutting down of an irregular piece is also apt to be very time-consuming with this method. The author customarily does all preforming on grinding wheels of 120 grit or 220 grit depending on the fragility of the material. A little practice is needed to become proficient but once learned the process is fast and accurate.

Pre-formers are not greatly useful for any except round brilliants.

Conclusion

We now close our remarks on faceting machinery and trust that the considerations voiced in the preceding may serve as a guide in the selection and purchase of equipment. The comments are not directed to any specific make of machinery but are applicable to all. I have my own preferences of course and will be glad to inform those who care to know what they are. In general the prospective purchaser must attempt to evaluate a piece of equipment on the basis of whether or not it will do all he wants it to do, and then whether or not it is well-constructed. Remember that the simplest and most direct way is often the best way of accomplishing something; a machine designed on this premise can be made rugged, accurate, and strong.

It is difficult to advise people about getting the fully mechanical head or the traditional loose handpiece type of equipment. In the previous paragraphs I have attempted to show that great advantages accrue to those who become proficient in the use of the old method, however we may not all have the time or the patience to expend the considerable effort needed and therefore it can be safely said that the quickest results can be obtained with the fully mechanical head. From the standpoint of expense however, the cost of few wooden dopsticks, the jamb peg itself, and the master lap are far less than fully mechanized equipment. I should like again to emphasize that even the finest available equipment cannot turn out all manner of odd cuts without severe penalties in time and care, and keeping track of a multitude of slightly differing settings. Thus, the ultimate versatility of the mechanical head is much less than the loose dopstick. If this is a consideration to you, then you may find it best in the long run to get both equipments, becoming proficient in each.

More "Bouquets" For R & M!

Editor R&M:

The new R & M came yesterday, with its red cover. That's a nice idea, though it's the inside that counts with me. I would miss R & M terribly if it didn't get here, so here's my subscription for another year.

Tell Mr. Yedlin it's a real disappointment when R & M comes and there's no micromount column included that is the only criticism I have and that is a recent one. I have always read his articles, but just got my new B & L stereascopic Microscope and Mr. Hartshorn of West Haven, Conn., sent me some lovely mounted micros to get me started right. He's been so kind to help me via letters and specimens.

I just feel grateful to everyone because I'm so happy—this rock hobby business gets more thrilling every day.

Mrs. R. G. Hays
Rt. 1, Buffalo Road,
Des Moines, Iowa

Feb. 11, 1953

FOSSIL DEPARTMENT

Conducted by EDWARD T. BARONE

48 Elmwood Road, Verona, N. J.

I have received several interesting and encouraging letters from our members, most of which express joy over the fact that we finally have a fossil department in our magazine. Many thanks to all who have written; I will endeavor to answer each and every letter I receive.

From Mr. Amel Priest, of Peru, Iowa, an item well worth publication was sent to our department. The footnotes were added by your editor:

Fossil Collecting in the Pella Beds of Iowa

One of the most interesting places to collect fossils in Iowa is a formation known as the Pella Beds. Stratigraphically, these are part of the Ste. Genevieve Formation of Mississippian Age.[1] The beds consist of a grey or yellow marl, depending on locality, and overlie the St. Louis Limestone, which is quarried for road rock and other limestone products. The quarries working this limestone must remove many feet of overburden, including several feet of the marl. As the marl lies directly on the limestone, naturally, it is the last to go on the dumps. These huge piles of earth, topped by marl, are good hunting grounds for the fossil collector. Here can be found an abundance of good, clean, loose, well-preserved specimens, most of which are brachiopods. One of the most interesting of these, at least to me, is one of the larger brachiopods, *Spirifer pellaensis*, which takes its name from the locality and formation near Pella, Iowa.

Spirifers differ widely in size, ornamentation of shell, and age. They first appeared during the Silurian Age and continued into the Pennsylvanian.[2] Even in the same formation sometimes more than one specie is to be found. In the millions of years these animals have existed it is only natural they should change. Coming from many formations, spirifers and near relatives form interesting subjects for comparison and observation. As with finely xled. mineral specimens, a good glass is needed to better examine and study different types, including the ornamentation of the shells. Why, then, can not this study be just as interesting, and the collecting just as fascinating, as that of fine minerals — as, for example, quartz crystals, with their various colors, phantoms, and inclusions? The above philosophy need not apply to spirifers alone, but to any phase of fossil collecting. There are corals, bryozoa, foraminifera, crinoids, etc.; the field is almost unlimited.

Other brachiopods to be found in the marls are *Composita trinuclea* (quite abundant), *Pugnoides ottumwa* (numerous), *Girtyella indianensis* (several, but they take close searching), *Orthotetes kashaskiensis* (quite a few, but hard to find unbroken specimens), *Dictyoclostus parvus*[3]. (common, but many times shells are partially broken), *Linoproductus ovatus*[3]. (not as common as Dictyoclostus).

1. *The Ste. Genevieve Formation is of Late Mississippian Age. It overlies the Meramecian, the topmost member of which is the St. Louis. During the Meramecian about 10% of the medial portion of North America was covered by epeiric seas, resulting in sediments which attained a maximum depth of about 1,800 feet. Limestones and oolites dominate the center of this region.*

2. *The sub-order Spiriferacea extends from the Middle Silurian to the Jurassic. The genus Spirifer, of this sub-order although essentially a Mississippian form, ranges into the Lower Pennsylvanian.*

3. *Both Dictyoclostus and Linoproductus belong to the sub-order Productacea, a group common among Mississippian, Pennsylvanian, and Permian Age fossils throughout the world.*

Occasionally, a small specie of *Cliothyridina* is to be found. The cup-coral, *Triplophyllum pellaensis,* (shaped like a miniature cowhorn) is plentiful. Sections of a large branching bryozoan are present. A tiny blastoid, about the size of a pea, takes close scrutiny to discover as it is uncommon. Pelecypods, in the form of casts, are few in number and small in size. A trilobite is reported from these marls, but I have never been lucky enough to find one.

The Pella beds cover a considerable area in the state of Iowa. Outcrops are found in the north-central part, near Fort Dodge, Webster County, and at Ames, Story County. Around Pella, Marion County, there are several quarries; some are not worked any more, but the dumps are still there and are good picking. I have visited a quarry north of Oskaloosa, in Mahaska County, and one north of Sigourney, Keokuk County. Both have good dumps and collecting is good. According to the Iowa State Geological Survey books, outcrops of the Pella beds are to be found also in Wapello and Jefferson Counties, in southeastern Iowa. I have never visited quarries there, but I believe the collecting would be about the same as at other localities.

If you have never collected fossils, gather up a few the next time you are at a suitable locality and look them over with the knowledge in mind that in ages past these were living creatures. Isn't there something, not beautiful, but rather fascinating about this fact?

About Gastroliths

Are gastroliths fossils? Since gastroliths reveal the former existence of the creatures which utilized them, they are, in the strictest sense, fossils. They fall into the same category as footprints and worm burrows, as examples. Being such, no complete fossil collection should be without a specimen or two of these odd stones.

Gastroliths are exceedingly difficult to identify. There is little written about them, and most geological text books completely ignore them. Apparently, there is no set rule for their identification. Specialists depend a great deal upon other factors (other than examining the stones themselves) to verify their authenticity. Not only do the associated fossil remains enter into the picture, but also the rocks which may be present in the same formation. Gastroliths are generally found along with the bones of the animal. Plesiosaur remains, if complete, most always contain a quantity of gastroliths: as much as a half-bushel being found from one animal.

To the writer, a gastrolith which has been used by the creature over a long period of time presents no problem in identification. Its unique smooth polish can not be duplicated by either geological or mechanical means. It is self-evident. However, it is the slightly polished specimens which often defy identification; some are without any visible polish. Logic tells us this variance is due to the length of time the animal had the stone in its possession. Also, as the lapidarist knows too well, some stones aren't the "polishing kind."

There is a factor one is apt to overlook in the examination of gastroliths. A rock or pebble made smooth by water or wind may have had the grinding action of not only rocks of like-size applied to its surface, but also the tiniest grains of sand and grit. These tiny grains penetrate every crack and crevasse, smoothing over the smallest jagged edges in these depressions. Although an animal may have picked up a stone already partially worn by water or wind, there are many gastroliths which lack this "internal" grinding. This is due to the fact that the stones were rolled about with others of similar size, leaving the pits and cavities untouched by abrasion.

Among the curiosities in the gastrolith field are, if I may use the term, "double-fossils." These are fossils swallowed by the animal, resulting in gastroliths. Common among these may be named petrified wood and fossiliferous rock.

From Our Readers

From Bill P. Cole, 408 Dickinson St., Chillicothe, Missouri, I received several fine hematite internal casts (steinkerns) of pelecypods. These were found along a

river bank near his home. Individual shells, from ½" to 2", are found in sand, while others in situ, in the limestone banks. Have not yet identified these.

Mr. B. J. Keys, Box 572, Worland, Wyoming, reports the finding of dinosaur bones which make a radioactive mineral detector "sing." Mr. Keys has one of the finest gastrolith collections in the West.

Mr. Douglas McCain, Box 127, Delphi, Indiana, who lives in a region where the Lockport Formation (Middle Silurian) has outcropped, mentions the finding of many fossils there: cephalopods, brachiopods, corals, bryozoans, and crinoids. Also, a few fossils in the local Devonian strata.

I am pleased to publish a letter written by Mrs. Austin W. Harris, R.F.D. #4, Norwich, Conn., since it really expresses a collector's enthusiasm for the field of paleontology:

"I am glad that there is to be a fossil department in ROCKS AND MINERALS, and I enjoyed your article very much, since I am interested in fossils and have quite a nice collection of them.

Although I'm not an authority on anything, I thought I'd write one of the "Let's get acquainted" letters which you suggested would be appreciated.

A few years ago, via the mails and a mutual pen-acquaintance, I became acquainted with a woman from Texas, who sent me some fossils in return for some Connecticut souvenirs.

To me, their very plainness was lovely, and they were fascinating because until then my first love (in collections) was sea shells, and in the fossils I found duplicated some of my beautiful shells. You guessed it! I went overboard for fossils, since collecting seems to beget collecting.

Now, the fossil I like the best is my very large Mesozoic cephalopod. It is the same size as my largest Chambered Nautilus. I suppose every sea shell collector feels sentimental about the C.N. and the lesson it teaches (as brought out in Oliver Wendell Holmes's poem). So when I see its counterpart and realize that the fossil is millions of years old and the Nautilus is still in existence, it amazes me.

I also have brachiopods, pelecypods, corals, crinoids, etc., which link up with the sea shells, starfish, etc. — so you see why I think the fossils are really beautiful."

RADIOACTIVE COLUMBITE FROM HADDAM, CONN.

By OTTO G. BARTELS

376 Amostown Road, West Springfield, Mass.

The readers will be interested in a report of radioactive columbite from Haddam, Conn. The mineral is found in cross sections of crystals up to 2½ by 4 inches in the pegmatite of the Rock Landing Quarry. Specific gravity of the columbite ranges from 5.35 to 5.50 indicating a low tantalum oxide content. The radioactivity has been checked by geiger counter and spinthariscope methods with the estimated U_3O_8 content of about 0.5%.

The literature indicates that columbite is radioactive only when intergrowths or solid solutions occur with minerals such as samarskite. Richard Schooner of East Hampton, Conn., has specimens showing radioactivity higher than the columbite specimens, so samarskite or other minerals may have been present. The section of the quarry that has produced the columbite did produce uraninite crystals in former years. The finding of radioactive columbite in an area where uraninite has been found leads to the theory that radioactive columbite can be used as a guide to other radioactive minerals in pegmatites.

OPAVSKY DIES IN URUGUAY

Just as ROCKS AND MINERALS was going to press, word reached us through Mrs. Virginia Howie of Millis, Mass., that Rudolf Opavsky of Montevideo, Uruguay, died recently of heat prostration. Mr. Opavsky was a noted gem dealer whose ads have been appearing regularly in this magazine.

Collector's Column

This column, designed to be a help to beginners in Mineralogy, began with the Sept.-Oct. 1948 issue. In the last issue we discussed gypsum. This time let us consider Halite—native sodium chloride—also known as common or rock salt.

Halite

Halite is a valuable and useful mineral. It has been said that halite is to the chemical industry what iron ore is to the steel industry. Thousands of tons of salt are used every year as the raw material from which we produce sodium carbonate, an important ingredient in glass; chlorine for purifying water; and caustic soda for soap making. It is also used as a food preservative. Salt is almost indispensable in the diet of man for it is the source of hydrochloric acid in our digestive juices.

The name halite has been adapted from the Greek term meaning the sea. Halite is readily identified by the vitreous luster (like that of glass), the cubic cleavage, and the typical "salty" taste. It can be distinguished from Sylvite, which it resembles, by the less bitter taste and the intense yellow color it imparts to a flame. Halite ranges from colorless to white and is sometimes yellow and red due to impurities of clay and iron oxide. At times halite shows irregular patches of blue and purple in otherwise colorless masses. This blue color is believed by some to be due to presence of colloidal sodium. It is about 2.5 on Moh's scale of hardness and makes a colorless to white streak. Halite occurs as granular to compact masses and as cubic crystals. These crystals are occasionally cavernous, that is, the sides are indented like a hopper.

Halite occurs in extensive and irregular beds in rocks of all ages widely distributed over the world. These beds appear to be the result of the evaporation and final drying up of bodies of salt water. They were later buried under other sedimentary deposits. Halite is usually associated with such minerals as gypsum, anhydrite and sylvite. The deposits at Stassfurt, Saxony, Germany, have long been famous. Fine specimens have been noted from Ischl in Austria and Bex in Switzerland. Crystals were found at Girgenti and other places in Sicily. Recently, nice blue cleavages showing movable bubbles have been found at Hessen, Germany.

In the United States extensive deposits are located in New York, Michigan, Louisiana and other states—in fact salt is produced commercially in fifteen states. Recently an interesting occurrence was reported from the potash mines of Eddy County, New Mexico, where inclusions of blue and lavender tinted crystals were found in colorless, transparent sylvite. Fine transparent masses of halite have been found in the Verde Valley, Yavapai County, Arizona.

It might be interesting for our readers to note something about how their salt is obtained. At Detroit, Michigan, in a mine more than 1,100 feet under the city, we find large electric shovels digging halite from a layer about 30 feet thick. Some of the salt is crushed and used as found. Near Watkins Glen, New York, we see many derricks. These belong to the salt wells where holes are bored to the correct depth, water is pumped in, the salt is dissolved and forced to the surface as brine, which is later evaporated and purified. Near Salt Lake City, Utah, we see large beds surrounded by earthen dikes. Into these beds are pumped water from the Great Lake which is allowed to evaporate. The resulting white crystals are ready for use. In some Arctic regions, natives have obtained salt by placing pans of sea water out to freeze. The ice containing very little salt is discarded and the process continued till a brine is obtained. The brine is then evaporated indoors and the salt purified for use.

Halite should be found in every collection—get some from your dealer today.

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.

Items on interesting sands wanted. Please send them in.

Quartz Sand from Arkansas

A nice sample of fine grained white sand consisting entirely of white quartz, has been received from Mrs. John Roder, RFD 4, Hot Springs National Park, Ark. The sand was collected along Ark. highway 69, in Izard County, between Brockwell and Cushman (but closer to Cushman).

"There were quite a number of places along the highway where the banks along both sides were all pure sand. They were almost straight up and down. It was nearly all white but some had a light tan streak through it. This was on highway 69 between Brockwell and Cushman but closer to Cushman was where I got the sample."—Mrs. Roder's letter, dated Oct. 6, 1952.

Quartz Sand from Point Lobos S.R., Calif.

At Point Lobos State Reserve, below Monterey, Monterey Co., Calif., occurs a very coarse gray sand of which a sample was sent us by Arthur W. Browne, 623 Palo Alto Ave., Mountain View, Calif. The sample consists chiefly of quartz (white, smoky, brown) with black biotite flakes. Many of the coarser quartz grains contain tiny imbedded black flakes of biotite.

Beach Sand from Carmel, Calif.

Carmel, in N.W. Monterey County, is on the Pacific Ocean and from its beach we have received a good sand sample that was sent in by Arthur W. Browne, 623 Palo Alto Ave., Mountain View, Calif.

This is a fine grained gray sand consisting entirely of quartz (colorless, white, smoky).

Gold Sand from Fremont Co., Colo.

Mrs. Nell Buhlis, Manager of the House of Crystals, 2206 Central Ave., Hot Springs National Park, Ark., has sent us a small vial of gold bearing black sand which she panned on the Arkansas River, near Texas Creek in Fremont Co., Colo. This is a fine grained black sand consisting chiefly of black magnetite (about 90%) with small amounts of colorless quartz, red garnet, green epidote, and at least 6 grains of gold of which two are of good size.

We have examined many gold bearing sands in the past but never seemed to find any gold (perhaps there were none in the samples examined or we might have been in too much of a hurry). This time we went at it in the right way. First we removed all the magnetite by means of a magnet (wrapped in a handkerchief) and then we examined the two piles—first the magnetite and then the other remaining pile. There in the center of the magnetite, showing distinctly against the black background, was a bright yellow gold grain (the largest); and in the other and very small pile we found at least 5 grains of gold.

"After the convention (Rocky Mountain Convention at Canon City, Colo. last June), Mr. Buhlis and I spent one day panning gold on the Arkansas River. We got four nuggets, some fine gold, and a lot of gold bearing black sand. I am sending you a vial of the black sand, also a photo of myself panning gold."—letter from Mrs. Buhlis, dated Sept. 9, 1952.

"We got the gold up the Arkansas River near Texas Creek (Fremont Co.), Colo. There's millions in gold in the river above Canon City, but it would take a lot of money to recover it in that swift stream. If I were younger I would do that very thing."—item from letter dated Sept. 28, 1952, from Mr. Buhlis.

Beach Sand from Niantic, Conn.

Niantic, a small town on Long Island Sound (on Niantic Bay to be exact) is in S.W. New London Co., Conn. From the beach at Niantic, we have received a sand sample sent in by Antoni J. Chmura, 529

Mrs. Nell Buhlis panning for gold in the Arkansas River, near Texas Creek, Fremont Co., Colo.

Minooka Ave., Moosic 7, Pa. This is a fine grained gray sand consisting chiefly of quartz (colorless, whitish, brownish) with minor amounts of gray feldspar and still smaller amount of lustrous black biotite flakes.

Red Sand from Red Rock, Iowa

This is a dark red coarse sand consisting entirely of quartz which is heavily coated with dark red hematite. It was sent in by Amel Priest, Peru, Iowa.

"Am enclosing some sand from some crumbled sandstone which crops out of the bluffs of the Des Moines River at Red Rock, Iowa. Evidently the town got its name from the rock. Not all of it is red as it tones down to brown and orange-yellow.

"Red Rock in in the northern part of Marion County. The red sandstone crops out of the north bluff of the Des Moines River in a ledge several feet thick."—letter dated Sept. 16, 1952, from Mr. Priest.

Shell Sand from Acadia N.P., Maine

Acadia National Park is on Mt. Desert Island (Hancock Co.), Maine. On the east coast of the island, at a beach on the Atlantic Ocean, is found an interesting coarse, dark gray shell sand consisting entirely of broken up sea shells of various colors as gray, white, brown, yellow, blue, red, green, etc. Last summer, while on a visit to Maine, Mrs. Shirley W. Gretsinger, RFD 1, Binghamton, N. Y., collected for us a nice sample of the interesting shell sand.

Beach Sand from Baileys Mistake, Maine

This is a dark gray, very fine grained sand. It consists chiefly of colorless quartz, black biotite, and brownish feldspar. A small bottleful of the sand was sent us by William P. Hinckley, RFD 3, South Brewer, Maine.

"While I have not yet become a sand collector, I am sending you, under separate cover two bottles of sand which may be of interest to report in your 'Sand Collector' column. Both of these sands come from beaches in the town of Lubec (Washington Co.), Maine, and I might add that such beaches are rare in the eastern part of our State. The first and coarser sample might be of interest be-

cause it comes from the most easterly beach in the United States. It is only about 1½ miles west of West Quoddy Head, which is the extreme eastern tip of our nation. (Will be described in the next issue).

"The other sample comes from a place called Baileys Mistake, and may be of interest because of the peculiar name of the locality if for no other reason. The beach is about 250 yards long and at low tide it runs out for more than one-quarter mile. I have been unable to learn what the mistake was." - - - letter from Mr. Hinckley, dated Nov. 6, 1952.

Beach Sand from North Beach, Md.

North Beach is in N.E. Calvert County, Maryland, on the Chesapeake Bay. A small sand sample from the beach was sent us by Billy Laughlin, Rt. 1, Box 417, Clinton, Md.

This is a medium grained brownish sand consisting entirely of quartz (brownish, colorless, smoky, with a very small amount of dark brown jasper).

Beach Sand from Shirley Beach, Mass.

Shirley Beach on Boston Bay is in Winthrop, Suffolk County, Mass. From this beach we received a small sand sample that was collected by Arnold M. Dixon, Chestnut St., RFD 503, Foxboro, Mass.

This is a dark gray fine grained sand. It consists chiefly of quartz (colorless, smoky, brown) with small traces of red garnet, green epitote, and black magnetite.

Creek Sand from Pevely, Mo.

Linius C. Hoffmeister, 504 W. Ripa, Lemay 23, Mo., has sent in a sand sample which he collected from Big Sand Creek, near Indian Foot Lake, at Pevely, Jefferson Co., Mo. This is a fine grained brownish sand consisting entirely of quartz (colorless, brownish).

Arkose Sand from Graniteville, Mo.

An arkose sand is one rich in feldspar grains. Such a sand occurs at the Elephant Rocks in Graniteville, Iron Co., Mo. (For a description of the Elephant Rocks, see Missouri in our World News column).

Linius C. Hoffmeister, 304 W. Ripa, Lemay 23, Mo., has sent us two samples of the sand. One is a coarse grained reddish-brown sand consisting chiefly of pinkish feldspar with minor amounts of smoky quartz and a tiny amount of black magnetite.

The other sample is a very coarse reddish-brown sand which consists chiefly of pinkish feldspar with smoky quartz—some magnetite also present but it is imbedded in the feldspar.

Garnet Sand from Mina, Nev.

From W. Scott Lewis, 2500 N. Beachwood Drive, Hollywood 28, Calif., we have received an interesting garnet sand which comes from a locality in the mountains east of Mina, Mineral Co., Nevada.

This is a medium grained brownish sand consisting chiefly of brownish garnet with some whitish quartz and white scheelite—the scheelite fluoresces blue under the Mineralight.

Beach Sand from Wildwood Crest, N. J.

Wildwood Crest, in Cape May Co., N. J., is on the Atlantic Ocean. A sample of the beach sand was received from Mrs. Wm. Moses, RFD, Malvern, Penn.

This is a fine grained gray sand consisting entirely of quartz (colorless and brownish).

Building Sand from Annsville, N. Y.

Annsville is a small hamlet bordering the northern outskirts of Peekskill, Westchester Co., N. Y. In Annsville, the Peekskill Mason Supply Co. (Peter de Luca, Pres.) operates a large sand bank whose product goes into constructions of buildings, roads, bridges, etc. A sample of the sand was obtained some few months ago by the conductor of this department. This was a medium grained dark gray sand consisting chiefly of quartz (smoky, white, brownish) with some black biotite flakes, silvery muscovite flakes, gray feldspar, and black magnetite.

Sandstone Sand from Hunter, N. Y.

Some few months ago while on a trip through the Catskill Mountains of S.E. New York by the conductor of this department, a stop was made in Hunter, Greene Co., for the purpose of collecting a sand sample from Schoharie Creek which flows through the town. The sample turned out to be a dark reddish coarse grained sand consisting almost entirely of

red and gray sandstone; some smoky quartz was also present.

Lake Sand from Wrighter's Lake, Penn.

Lakes in Pennsylvania are scarce so when a sand sample is obtained from one (Lake Erie excepted) it is enough to make a sand collector sit up and take notice. Such a sample was received, not long ago, that had been collected by Vernon Bitler, 138 Henderson St., Old Forge, Penn. This is a fine grained gray sand consisting entirely of quartz (colorless, white, smoky, brownish).

Wrighter's Lake is in Thompson, Susquehanna Co., in N.E. Pennsylvania.

Brook Sand from Lawn, Penn.

A letter dated Dec. 27, 1952, from Grover C. Williamson, Lawn, Lebanon Co., Penn., reads:

"Being a subscriber for R&M I am taking the privilege of sending you a small container of sand from a small mountain stream near where I live. I thought you might be interested in receiving a sample from this section of Pennsylvania. In this sand I notice little black streaks. I wonder what they might be?"

This is a coarse, grayish-brown sand. It consists chiefly of unknown grains (possibly quartz) stained brown by clay. Smoky quartz also present and in addition black lustrous magnetite which was the mineral mentioned by Mr. Williamson.

Beach Sand from Myrtle Beach, S. C.

Myrtle Beach in Horry Co., is one of South Carolina's most popular resorts; it is on the Atlantic Ocean. From this noted beach we have received two sand samples, from two collectors, and it might be interesting to see how they compare.

The first sample was sent in by Mrs. George C. Barclay, 119-27th St., Newport News, Va. Her sample is a light gray fine grained sand consisting entirely of quartz (colorless, smoky, brownish).

The second sample was sent in by Rev. Wm. J. Frazer, 625 Main St., Moosic 7, Penn. This is a gray, medium grained sand consisting chiefly of colorless quartz (much of it is transparent) and broken up sea shells (white, brown, pinkish, reddish); a few red to pinkish garnets also present.

Sands often vary widely on a beach, and it is sometimes possible to collect gray sand, white sand, red sand, black sand, etc—all within a few feet of each other. When two or more samples from the same beach differ, it just indicates that they were taken from different parts of the beach.

Monazite Sand from Spartanburg, S. C.

A most interesting monazite sand has been received from Cecil Fogg, 7424 Burnet St., Spartanburg, S. C. This is a coarse grained, brownish sand consisting of brown monazite, red garnet, smoky quartz, green epidote, black, lustrous rutile, black magnetite (some are tiny lustrous crystals), and zircon which fluoresces orange under the Mineralight.

"The sand comes from my back yard, 4 miles north of Spartanburg (in Spartanburg Co.), S. C."—from a letter dated Oct. 15, 1952, from Mr. Fogg.

Just imagine, an honest to goodness real mineral locality in your back yard!

River Sand from Knoxville, Tenn.

The following interesting letter, dated Dec. 8, 1952, comes from William M. Johnson, RFD 6, Knoxville, Tenn.

"Back in 1783 some Scotch-Irish settlers from Virginia came down the Tennessee River to a point about three miles east of Knoxville. They dispossessed the Cherokee Indians in some way and started farming in the bottom lands on the north side of the river. These people were my forbears and some of the family have been on the land since that time. One spot has always been known as the sand bank.

"The water sorts the sand and most of the time it is clear of any trash. I am sending you a can of the sand. It shows mica which has come down from the highlands of the mountains as all our part of the valley is sedimentary. I sifted the sand thru about a 14 mesh, taking out a few sticks but no gravel."

This is a fine grained brown sand. It consists chiefly of colorless quartz and silvery muscovite flakes, with some grayish feldspar and tiny amounts of black magnetite. The label with the sand reads: "From the Tennessee River, north side at

McNutt Schoals, 2½ miles east of Knoxville (Knox Co.), Tenn."

Beach Sand from Wasaga Beach, Ont. Canada

Wasaga Beach is on Nottawasaga Bay (part of Georgian Bay which in turn is part of Lake Huron). A sample of sand from this beach has been sent us by Mrs. Charles DeFazio, 629 Minooka Ave., Moosic 7, Penn. This is a fine grained gray sand that is made up chiefly of quartz (chiefly colorless but brownish and whitish also present) with some black magnetite. A little broken white shells also seen.

River Sand from Santiago, Chile

Santiago is the capital and largest city of Chile; the Mapocho River crosses the city from east to west. Last year Santiago was visited by one of our good subscribers, W. T. O'Gara, 1937 Hurley Ave., Fort Worth 4, Texas, who collected for us a sample of sand from the bank of the river (also some pebbles—see Chile in our World News).

The sand from Mapocho River (also known as Rio Mapocho) is a very coarse, gray sand and not at all attractive. It consists of quartz (smoky, white), black magnetite, green epidote, and various rocks such as black basalt, grayish quartz porphyry, etc. Most of the grains are coated with grayish clay.

Magnetite Sand from Cartagena, Chile

Cartagena is a little town on the Pacific Ocean about 30 miles south of Valparaiso, the principal port of Chile. From the beach at Cartagena, we have received a nice sample of magnetite sand that was collected for us by W. T. P. O'Gara (see above item).

This is a very fine grained black sand consisting chiefly of black lustrous magnetite with some quartz (colorless, brownish, white), green olivine and white sea shells.

Beach Sand from Waikiki Beach, Hawaii

In May, 1952, Mr. and Mrs. R. L. Sylvester, 154 Parkside Ave., Syracuse 7, N. Y., visited the Hawaiian Islands where they collected a number of sands and minerals in addition to sight-seeing. One of the localities visited was world-famous Waikiki Beach near Honolulu on Oahu Island. Of course they collected a nice sand sample from this noted beach—got the sand in front of the Royal Hawaiian Hotel to be exact. Mr. Sylvester was good enough to share the sample with us.

This is a fine grained gray sand consisting entirely of corals and some sea shells (white, brown, pink, gray).

Beach Sand from Playa Buena Vista, Mexico

In Baja California (Lower California) we had a correspondent who may still be residing there; she was planning to move to the States. Her name and address are: Mrs. Grace Threlfall, Santiago, Baja California Sur, Mexico. Mrs. Threlfall was good enough to send us a sample of sand from her area. Part of her letter, dated Oct. 4, 1952, reads:

"The beach where the sand comes from is just east of Santiago on the Gulf of California. Santiago is midway between the Gulf and the Pacific Ocean, in the mountains. The beach from where we took the sand is called 'Buena Vista' (beautiful view) and it is really a beautiful view. (Playa means beach).

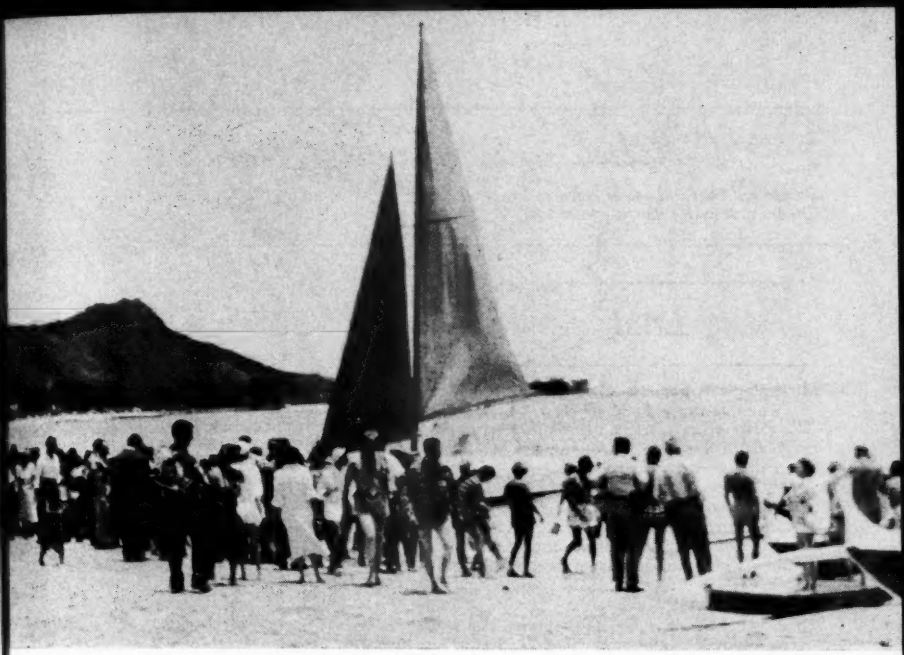
"Further in regard to our location. There appears to be two Santiagos in Baja California but the one nearer Santa Rosalia is a tiny, tiny village. Our Santiago, in the south of Baja California (about 50 miles north of the southern tip) is a county seat, as we would call it, and more or less important for this section."

The sample is a coarse gray sand. It consists of white feldspar, smoky quartz, and black biotite.

Garnet Sand from Loch Mullardoch, Scotland

Loch Mullardoch, a narrow sheet of water nearly 5 miles long, is in the northern part of Scotland. From the western end of the lake, at West Burn in Ross-shire, a sample of sand was collected by Inspector W. Cannon of the Glasgow Police Headquarters, part of which was given to Sandy Ramsay, 1015 Aikenhead Road, King's Park, Glasgow S4, Scotland, who sent it on to us.

This is a coarse grained red sand consisting chiefly of reddish, gemmy garnet, with brownish (iron stained) quartz, silvery muscovite flakes, and grayish mica schist. The garnets are rounded and even grained while the other material is not



Waikiki Beach near Honolulu, Hawaii (front of Royal Hawaiian Hotel) May, 1952.

too rounded and of various sizes. A note with the sample reads: "It was collected just where the burn (stream) pours into the loch (lake)."

Shell Sand from John O'Groats, Scotland

Sandy Ramsay, of Glasgow, Scotland (see above item), has sent us an interesting shell sand whose label reads: "From John O'Groats, the most northerly inhabitable point in Scotland (mainland)."

"You no doubt have often heard the saying 'From Land's End to John O'Groats', meaning from the utmost reaches of England to the same in Scotland,"—Sandy Ramsay's letter, dated Dec. 11, 1952.

John O'Groats is in the northern corner of Caithness County, Scotland. According to legend, John O'Groat was a Dutchman who built an 8-sided house, with 8 doors and containing an 8-sided table in order to prevent disputes as to precedence in his family.

The sample is a coarse white sand. It consists entirely of sea shells (chiefly white but pinkish, brownish also present). Some of the shells have an iridescent luster on the inside surface.

Although the label did not give the information, we believe the sample is a beach sand as John O'Groats is on Pentland Firth, a channel, 6 to 8 miles wide, connecting the Atlantic Ocean with the North Sea.

Beach Sand from Nicaragua

A letter dated March 3, 1953, from Mark H. Robinson, 18 E. 41st St., New York 17, N. Y., reads as follows:

"I have just returned from my trip to Nicaragua and while at Puerto Cabezas I collected a small bottle of sand for you, which I will send by parcel post under separate cover.

"Puerto Cabezas, Nicaragua, is on the Caribbean Sea, or east shore of Nicaragua. It is in the northern part of the country and is on a red clay bluff about forty feet high. There is a narrow strip of sand beach under the bluff and the waves break on this sand."

The sample received is a gray, very fine grained sand. It consists chiefly of quartz (colorless, smoky, rose, brown, reddish) with some green epidote and a very tiny amount of black magnetite.

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Mineralogical Society of Pennsylvania January Field Trip

"We have often asserted that although our ancestry dates back to 1876, we take more pride in our growth and achievements than in our years."

This statement by H. S. Meyer president of the Foote Mineral Company in the December 1951 issue of FOOTE PRINTS, the company magazine, is the philosophy which motivates the activities of the scientifically progressve concern.

The Foote Mineral company was the unexpected result of a hobby evolving into a commercial enterprise. In 1876 Albert E. Foote, M. D., a professor of Chemistry and Mineralogy at Iowa State College, exhibited his collection of rare mineral specimens at the Centennial Exposition in Philadelphia and was the recipient of the only award given to an American for a mineral collection. This acclaim and the insistence of visitors who bought his surplus, made him decide to give up his professorship and open a mineral specimen house in Philadelphia.

According to the aforementioned FOOTE PRINTS, a contemporary, (Professor Thomas Egletson) referred to him as "the most enterprising mineral collector and merchant that we have had in this country," and added, "No one ever did so much to disseminate a knowledge of American Minerals as he."

Such famous collectors as George Vaux Jr., Charles S. Bement, W. W. Jeffries and Col. Washington A. Roebling were regular Foote customers.

At one time Dr. Foote had over 700,000 different mineral specimens in his possession representing almost every country in the world.

While he was acting on an appointment of the State Commission to organize a display of Pennsylvania minerals at the Atlanta Exposition he was plagued by ill health. A wave of cold weather and overwork hastened his untimely death in October 1895.

His son, Warren, took over the direction of the business which then turned to commercial fields.

In 1900 a German firm requested that they be supplied with tantalum ore. To do this the Foote Company purchased the actual sources in South Dakota and thus was launched on its first commercial mining venture. Research is constant with this company. Prior to 1925, one of the rarer minerals that Foote imported was rutile used in small quantities to color artificial teeth. Research uncovered its value as a welding rod coating ingredient. Today Foote's most intensive research centers around lithium and its application in nearly every branch of industry. Lithium is supplied to welding (aluminum flux ingredient), grease (stabilizer) and ceramic industries. From headquarters in Philadelphia, Foote executives coordinate the activities of the company's various operations which include: Research and Development Laboratories at Berwyn, Pa., Processing Plant at Exton, Pa., and the newly operating mining site at Kings Mountain, North Carolina.

It was with a great deal of pleasure that our outing committee through THE KEYSTONE NEWSLETTER published an invitation to the membership to be the guests of this distinguished mineral company at its processing and grinding plant at Exton, Pennsylvania, on Jan. 25, 1953.

How enthusiastically M. S. P. members accepted the invitation is evident from the record. Despite the cloudy weather and a cold blustery wind, 125 members and guests came on the trip in 45 cars from many parts of Pennsylvania and New Jersey.

Our tour started as we came out of the cold into the company office, where we were greeted by Mr. Charles Marsh, Director of Personnel, who addressed the Society with words of welcome, gave short talks about the company and what we were to see and patiently answered innumerable questions.

We were conducted through the plant in groups of twelve by a corps of truly learned guides: Mr. Robert Lincoln, Chemical Engineer; Mr. Charles Umstead, Junior Mineralogist; Mr. George Kneass, Mineral Production Department supervisor; Mr. John Ramsay, Wet Laboratory Supervisor and Mr. Charles Dahlke, Chief Chemist.

Going through the plant we were given informative running lectures on the methods used in processing the many mineral products of the Foote Mineral Company. At different localities throughout the tour the company had what looked like hundred pound paper sacks full of the refined end-product of the processing. Samples were made available to club members as souvenirs. At the last indoor stop the company had set out a series of piles made up of different raw materials which were being processed with the name and locality of the

mineral posted on white cardboard placards. After the final lecture the members were provided with large multi-layered paper sacks and told to help themselves to all the samples they desired.

The close of the tour found us outdoors on the stockpiles with our guides pointing out the location of the piles of the various minerals and courteously waiting around to see that we got all we wanted.

The delighted exclamations of the newcomers were mingled with the grunts and groans of those carrying their full sacks back to the cars.

Springs sagged with their loads of beautiful Rhodesian Lepidolite, Mexican Fluorite, Celestite from New York, Australian Zircite with Zircon sand, Rutile sand from Australia and the very rare and much in demand Petalite from Rhodesia.

Before we left each member was given a copy of the 75th Anniversary issue of FOOTE PRINTS, the company publication which contains a history of the company and many interesting facts about the products of the company.

The company operates every day of the week and has an excellent safety program. A broom painted silver, sporting a blue and gold pennant having on it the words, "Good Housekeeping Champion" is awarded to the department which keeps its section neatest over a given period. A large red shovel inscribed with the words, "We have to Clean up Better," is given to the department that lags.

The Mineralogcal Society of Pennsylvania feels that this was one of the most interesting and educational trips ever attempted by the field trip committee.

Again mineral specimens in our cabinets will carry the Foote label.

We are very grateful to the Foote company and its employers for their exceptional patience and hospitality. May all their projects prosper.

Lapidary Meeting

On January 18, 1953, the Lapidary section of the Mineralogical Society of Pennsylvania met for a showing and discussion of Quartz Family Minerals at Long Lane Farm, Collegeville,Pennsylvania, the lovely home of Mr. and Mrs. Frank Hankins.

We first got together as a group to view over 100 slides on Quartz gem stones plus about sixty slides of a mineral collecting trip taken by our hosts thorugh Oregon, Washington, California and the Canadian Rockies this past summer.

These slides were very interesting from the viewpoints of both the lapidary and general collector.

After this enjoyable showing we divided into three groups rotating about three tables where we stayed for periods of approximately twenty minutes. Each table was presided over by a discussion leader. Mrs. Gene Belz led the discussions on Jasper and Petrified woods. Russell Bell was the discussion leader for the various forms of quartz not covered by Agates and Jaspers, i.e. Crystalline Tiger Eye, Rock Crystal, Amethyst, etc. Our host, Frank Hankins led the discussions on the various types of Agates: ribbon, fortification, plume, moss, rainbow, chalcedony, marine, etc., about 30 varieties in all. Much of this material had been gathered on the aforementioned trip.

During the talks which featured a general discussion of the properties of the minerals, experiences of the members in cutting these materials were exchanged.

We were in complete concurrence with our host who felt that this progression-types, activity-centered presentation was much more fun and much more educational than the usual formal lecture.

The application of John Dewey's philosophy, "learning by doing," long used in our schools and applied to our meeting was an immense success. To quote our host, "What the eyes see and hands touch we understand."

Some added features were the exhibition of Gene Belz' collection of cabochon buttons representing a gem material from every state of the Union; Russell Bell's demonstration on how to orient asteriated Rose Quartz using a pair of polaroid filters; an exhibit of a dozen identified woods collected from the Ginko Petrified Forest and a tour of the fine Hankins' lapidary shop.

Three kinds of cake served with coffee and tea fortified us for the homeward trek through the raw, rainy night and with regret we bid our hosts good-bye at the close of this most interesting get-together.

Progress and Accomplishments

At the Convention of the Eastern Federation of Mineralogical and Lapidary Societies last October, Leonard Morgan won a first place certificate for his exhibit of Micromounts. A second place certificate in the class, "Crystals only," was awarded to Gerry and Will Shulman for an exhibit of their Nipper Mounts.

Again the staff of the Keystone Newsletter is to be congratulated for its well rounded presentation of Earth Science news.

We are continually edified and amazed by the excellent articles on Geology by Juliet C. Reed.

Dr. W. Hersey Thomas articles on Micromounts are enjoyable and highly informative.

Dr. Arthur Hopkins articles on Paleontology create a growing interest in the subject and Charles Owens' articles on radio-activity keep us up to the date on this vital modern subject. The articles on every phase of earth science by members too numerous to mention are noted and appreciated.

We would hate to be without this information packed little paper which keeps us abreast of the latest earth science information and the activities of our many faceted Society.

Junior Members

Two members of the Junior section of the Mineralogical Society of Pennsylvania, James Irvine Jr. and Dick Fretz, were the after dinner speakers at a recent meeting of the Central Perkiomen Valley Rotary Club.

The boys made a fine lecture team and their most interesting talk consisted of how they started collecting minerals, what they liked and found interesting in the hobby and where they collected minerals locally.

Besides giving the talk, the boys arranged an exhibit of minerals of local specimens and a colorful fluorescent suite of specimens which they showed under the short wave light.

The members of the Rotary club were very enthusiastic and quite impressed with the erudition of their youthful lecturers and the Norristown TIMES HERALD featured a picture of the boys and their specimens.

Gerry & Will Shulman
Co-Chairmen Publicity Committee
113 Huntington Terrace,
Newark 8, N. J.

North Jersey Mineralogical Society Meeting January 8, 1953

The so-called rare earths are not now so rare as they were, Curt Segeler of Queens Mineral Society told the North Jersey Mineralogical Society at its January meeting held in Paterson Museum.

This is because of the recent discovery of a big deposit in California which contains these elements in what appears to be sufficient supply. He said they are of strategic importance among the nation's minerals, but he was not at liberty to say why.

He supplemented his very informative talk with more than 20 mineral specimens containing the rare earths, and with blackboard diagrams. Mrs. Segeler showed slides of the minerals and of quarries where the Segelers had hunted for them.

Heretofore this group of 15 minerals or mineral elements was found chiefly in Sweden and Norway, and in small amounts in North Carolina, Virginia, New Hampshire and other eastern pegmatite localities.

The principal member of the rare earth group, both in quantity and in importance, is cerium. The others are lanthanum, praesodymium, neodymium, #61, not named; samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutecium.

It has been found that cerium is a valuable steel alloy factor, increasing the heat resistance of the metal considerably, and tonage quantities of cerium are needed for this purpose. The use of cerium in the "flints" of cigarette lighters is well known, Mr. Segeler said, and added that it was first used commercially many years ago in gas mantles.

Another element, yttrium, which occupies a diffferent place in the Periodic Table of Elements, is sometimes classed with the rare earths and is a source of several of them. This is named from the little town of Ytterby, Sweden, where it was first found, and where it was first studied by a Swedish chemist.

The speaker used a blackboard diagram to emphasize the importance of cerium and yttrium as the two source elements, and he explained how laboratory analyses have been successively breaking them down into the other members of the rare earth group during the many years since 1803 when cerium was given its name by the Swedish chemist, Berzelius.

All these elements are difficult and expensive to work upon physically, chemically and spectroscopically. Only in 1952 have they been produced as metals, by the use of ion-exchange resins, and then only in very small amounts. Segeler said they do not behave as other elements do before the spectrometer; neither do their atoms behave as other atoms, and he predicted these variations may lead to new concepts of atom structure and behavior.

Since the rare earths are often associated with uranium-bearing minerals, they are sometimes thought of as radioactive, but this is not true, he said. Also, there is a controversy whether to continue to group them as niobate-tantalates as has been done for years, or to class them as oxides, as proposed by some Canadian mineralogists. Segeler himself believes the latter to be more accurate, but as he said, the whole rare earth study is right up to the minute, and new discoveries may still be made.

Wm. C. Casperson
Paterson Museum,
Paterson, N. J.

The Lapidary & Gem Society of N. Y.

At a recent meeting of the Lapidary and Gem Society of New York, a most interesting talk was given on the minerals of Oxford County, Maine. Mr. Joseph Rothstein has become a summer habituee of this famous Maine region and showed the Society his large and excellent collection of Kodachromes. Although this is an "old time area", some quarries are being worked at present and excellent gem minerals are still available.

At the Jan. 12, 1953 meeting, general elections were held and the following officers were elected: Mr. J. Cole, president; Dr. B. Muscat, vice-president; Mr. S. Schweitzer, secretary; Mr. A. Goldstein, publicity director.

At the January 26, 1953, meeting, the noted collector, Mr. Joseph Stromwasser of the Bronx, N. Y., gave a most interesting talk on mineral collecting within easy traveling distance of New York City. Considering all in all it is really amazing how many productive areas for mineral collecting are as yet available near this enormous aggregation of people and concrete. Mr. Stromwasser is an unusual man who not only visits well known areas but also explores for new collecting with good success. He displayed some recently collected material including among many others, such things as Carnel-

ian from Watchung, N. J. Star Quartz from Bedford, N. Y., Sunstone from the Bear Mountain area in N. Y., and agate from Paterson, N. J. Within the past two months, the speaker collected at the famous Haddam Neck, Conn. (Gillette Quarry), and found several transparent green tourmaline crystals some 5 inches long with terminations. He also found a fist size faceting quality smoky quartz crystal. Mr. Stromwasser relates that with hard work, more of the same is still available there as he did not exhaust the pocket. Morganite is sometimes also found at this locality.

On Feb. 9, 1953, Mr. Langtree Lynd of the National Lead Co. will give a lecture on "Rutile" illustrated with slides. Guests and visitors invited to attend at our new quarters at 264 W 23 St., New York City.

On Feb. 13, 1953 and for some 6 weeks thereafter, the Society will have a large display of cut, polished, and rough gem materials on free exhibit at the Franklin Society for Home Building and Saving at 217 Broadway, W. 23 St., New York City.

Membership is still open. Many interesting events are planned for the year including several field trips. We are a working club with a lapidary shop available to members at all times.

Edge Goldstein
Publicity Director

Rochester Academy of Science
Mineral Section

Since we are well into a new year it seems fitting that I should write a brief resume of our activities for the year of 1952.

There were, of course, several speakers, the more notable being Dr. James Wishart of the University of Rochester, Dr. Apfel of the University of Syracuse and Mr. David Jensen of Ward's Natural Science Establishment. Dr. Wishart spoke of his work as one of the original explorers of the iron fields of Labrador, Dr. Apfel gave us an extremely interesting lecture on his trip to the Antarctic with the United States Navy and Mr. Jensen lectured us about antique "vaseline" glass and Uranium compounds used to color it.

The March meeting was devoted exclusively to the annual auction at which many fine specimans changed hands.

Officers were elected in May. These include Mr. Robert Eaton as Chairman, Mr. Earl Potter as Vice-Chairman, Mr. George Lynch, Jr. as Secretary and Mr. George Costich as Treasurer. They took office immediately.

Our summer program was a most interesting one. June saw us going to a large Devonian deposit of shale which contained a wealth of typical fossils.

The July trip was held over the week end of the 4th when we went to Kingston, Ontario, Canada and vicinity with Dr. L. G. Berry of Queens University as our guide. We visited a number of small workings at which was obtainable Black Tourmaline, Feldspar, Galena, Graphite, Mica, Peristerite and Hornblende. A visit was made to the long abandoned Silver Queen Mine where we had the pick of a huge scrap pile, the mine shafts being full of water. Here we collected rough, typical, Green apatite crystals, massive Pink Calcite, cleavages of White Calcite and Black Mica. It was not uncommon to pick up a beautiful piece of material containing the pink calcite, black mica and green apatite.

The afternoon of the same day was devoted to the Lyndhurst Quartz Mine at Black Rapids. Here we found Quartz crystals varying in size from a fraction of a gram to several kilograms. These crystals are mined for the electronic industry and are of a higher quality than the Brazilian crystals. We were limited, quite wisely, as to the amount we could take by charging us one Dollar per pound for top quality material. Seconds were free. The last day was spent visiting galena workings where many pounds of the material was taken.

The August trip was less spectacular but enjoyed just the same. This was our annual picnic and was held at one of our local parks.

Of course during the year many unofficial visits were made to the Penfield Dolomite quarry. Here one can obtain pink or white Dolomite saddles, massive Galena, Selenite, Celestite, Anhydrite, Petroleum, Sphalerite crystals, Quartz or Fluorite cubes.

In September we again resumed regular meetings. Nothing noteworthy was done again until our December Christmas dinner meeting. The many dirty dishes testified to its success.

Anyone interested in our program or organization is welcome to receive the information. They may do so by writing me.

George Wm. Lynch, Jr.
Secretary
57 Kirkland Road,
Rochester, N. Y.

Syracuse Mineral Club
(Syracuse, N. Y.)

A talk on Quartz by Dr. Newton E. Chute, motion pictures by R. L. Sylvester and election of officers comprised the regular meeting of the Syracuse Mineral Club on Friday, February 13th. New officers are: president, George Henes; vice-president, Miss Guenever Pendray; secretary, Miss Marjorie Thrope and corresponding-secretary, Miss Elisabeth Henes, 208 Tamarack St., Liverpool, New York.

Queens Mineral Society

The Queens Mineral Society held its monthly meeting on January 19th when new officers were elected for the year 1953: President, Edward Marcin; vice-president, Curt Segeler; treasurer (reelected), Victor Pribil; secretary (reelected), Miss Marie McKay.

Various committees were appointed and the program committee has an interesting schedule in mind. We have had, in the past, a small exhibit of our own in Queens and a similar display will be held in the fall of this year. Preparations are being made for the annual dinner. The guest speaker has not as yet been contacted, but more details will be given at our next meeting. The topic of our January meeting consisted of the showing of slides taken by two members of our club, the minerals were collected and photographed in Canada.

Miss Marie McKay, secretary
111-20 106th Street,
Ozone Park L. I., N. Y.

Mid-West

Chicago Rocks and Minerals Society

Dr. Donald C. Boardman, Associate Professor of Geology at Wheaton College (Ill.), spoke on "The Use of Accessory Minerals in the Work of Stratigraphy and Sedimentation", at the January 10 meeting of the Chicago Rocks and Minerals Society.

The oil and mining industries depend on the work of the stratigrapher. Most valuable in the "tools" used by them are the index fossils, however some of the earth's layers do not contain fossils.

Dr. Boardman explained how he has done research in stratigraphy, working on the Jordan sandstone from the type section south of Minneapolis, down to the vicinity of Madison, Wisconsin. In this area he gathered several thousand samples of unweathered sandstone and separated the heavy minerals contained therein.

Tho the process was complicated, the idea was to crush the sandstone and place it in a liquid of a certain specific gravity, which would allow the heavier mineral grains to sink while the lighter ones were floated off. The remaining heavy grains were then mounted on Canadian balsam slides and counted. Three significant minerals were found in the heavier material: garnet, zircon and tourmaline. Slides were projected showing grains of these three minerals under great magnification.

Such studies reveal the geography during each geologic period and the information is used in present-day well drilling.

February Meeting

Mrs. Gertrude E. Lewis, of the public relations department of the Santa Fe Railway, spoke at the February meeting of the Chicago Rocks and Minerals Society. She told of her work with the Indians at the Santa Fe Indian Village at the Railroad Fair in Chicago, where she formed lasting friendships with many of the people of the several Southwestern tribes represented there. She spoke of some of their ceremonials and customs, and gave her observations of the great hardships suffered by the Indians on the dry northern Arizona reservations.

Mrs. Lewis displayed superb pieces of Zuni and Navajo jewelry, including squash blossom necklaces, bracelets, rings and concho belts, both silver and silver with turquois. Jewelry plays an important part in many rituals, including the wedding ceremony. Medicine men take their fees in jewelry, therefore are usually seen wearing a great deal of it.

It being the Society's seventh anniversary, refreshments were served after the meeting, and a token of appreciation was presented to our first president, George Anderson, who is leaving Chicago.

Dorothy H. Gleiser
Publicity Chairman
1066 Griffith Road,
Lake Forest, Ill.

South

HOUSTON MINERAL SHOW
May 1, 2, 3, 1953

The combined Annual Show of the Rocky Mountain Federation of Mineral Societies, with the State Mineral Society of Texas as Host, to be held in the Houston Coliseum, Houston, Texas, May 1-2-3, 1953, is now rapidly taking shape, according to Kenneth C. Fry, Show Chairman.

The Houston Show will be staged in the huge Annex to the Coliseum, a building with clear space of over 500 feet long by 174 feet wide, and a 30 foot ceiling. This is the first major show to be held in the Texas area, and predictions have been made that it will be widely attended, both from the members of the 45 rock, gem and mineral societies of the 11 states represented, and by visitors from Mexico and Central America.

Exhibit space from fourteen states has already been contracted for, and show officials are arranging for outstanding exhibits of gems, minerals, museum collections and other exhibits of scientific interest. Lectures on the program will bring entirely new material to the attention of rockhounds, among them being one series by Dr. F. H. Pough on "Ye Compleat Mineral Cabinet", illustrated with 240 Kodachrome slides. Dr. Pough is authoring a new Field Book of Minerals to be published by the Macmillan Co. in May, and this lecture is a pre-view of the book. It will require two 90-minute lectures, and will be well worth hearing.

Another feature of the show will be the incorporation of industrial exhibits by large processors of minerals into semi-finished or finished products, showing many of the steps from raw mineral thru the various stages of chemical conversion to the final product.

Over 500 lineal feet of space has been allotted to individual and club exhibits, which will be free to the exhibitor and clubs will be furnished cases also if needed for their entries. Individual and club as well as competitive entries and judging, will be under the supervision of Domer L. Howard, Vice-president of the Rocky Mountain Federation, whose address is 1229 N.W. 47th St., Okla. City, Okla.

Door prizes of finished pieces of jewelry, one from each of the 45 clubs in the area, using a gem-stone, either faceted or cabochon representative of the particular area, will be awarded. Several very fine faceted gems have already been promised to Claude D. Pressler, Chairman of this section, 3309 Rochdale St., Houston, Texas, to be used as major awards.

Officials have planned a very low admission price of 25c, in order to keep out undesirable elements, and the show will be guarded 24 hours a day by Pinkerton men. Dealer exhibits will be placed in U-shaped spaces, with dealers working from within a protected area, having approximately 30 lineal feet of tables per space. No "tapping" of dealers for auction material is contemplated.

Neither field trips or dinners are planned in connection with the show, so as not to detract from visitors time while attending, but officials are planning field-trip information for visitors who may want to hunt either going or coming from the show. They point out that for diversion, visitors have the entire Gulf Coast nearby, with fine deep-sea fishing, miles of gleaming bathing beaches, and the San Jacinto Battlefield and Monument, with war-scarred battleship Texas in permanent drydock, all near Houston.

Being their first big show, Texans are trying to really do it up in big style, characteristic of the state, and hospitality of the typical Texas brand will be evident in helping visiting rockhounds have a good time while visiting the show, or in giving field-trip directions going or coming.

Fort Worth Mineral Club
(Fort Worth, Texas)

The annual election of officers of the Fort Worth Mineral Club was held Friday evening, February 6th, 1953, and the following officers were elected: president, C. A. Rigney; 1st vice-president, C. J. Luke; 2nd vice-president, Mrs. John Orr; secretary, E. W. Aiken, 3818 Earl, Fort Worth, Texas; treasurer, Mrs. E. J. Walty.

Following the business meeting members who had brought rocks to swap had a wonderful time "horse trading".

E. W. Aiken, secretary

South-West

Albuquerque Gem and Mineral Club

The Albuquerque Gem and Mineral Club held their annual election of officers, Jan. 26, 1953, in Room 203, Administration Building, University of New Mexico and the following people were elected.

President: Dean Wise
Vice President: E. R. Wood
Treasurer: Sam Ditzler
Recording Secretary: Marie Nickolls
Corresponding Secretary: Ellen C. Wood

With the election of all new officers, our club is looking forward to the coming year as being very prosperous and exciting.

Ellen C. Wood
Corresp. Sec'y.
9114 Fairbanks N.E.
Albuquerque, N. Mex.

Sante Fe Gem and Mineral Club
(Santa Fe, New Mexico)

The Santa Fe Gem and Mineral Club enjoyed a Christmas party and mineral display at the home of Mr. and Mrs. Ray Pond. Delightful refreshments were served and a happy evening was spent as a Christmas grab bag was on the program also, each one receiving a good specimen of mineral.

On January 20th a beautiful new hand-made cabinet was installed at the Chamber of Commerce rooms on Selby Street in Sante Fe for displaying rocks and minerals for the pleasure of tourists and rock collectors. A quiz game on rocks and minerals was held with prizes given for the best papers submitted. This was also "brag rock" night with each member telling a story in regard to his treasure, how it was obtained, or its history.

Miss Ora D. Orme, secretary
RD #1 Box #55
Sante Fe, New Mexico

West

Orange Belt Mineralogical Society
San Bernardino, California

The Orange Belt Mineralogical Society held its annual Christmas party December 2nd at the San Bernardino Valley College. The young people of the Society put on an entertaining program consisting of Christmas music and readings. While this was being enjoyed by the members and their friends, the judges were busy trying to determine the order in which the boxes of beautiful thumb-nail specimens should rank. Just one year ago the thumb-nail group was started by Mr. Adolph Dosse, who was

then president of the Society. Mr. Dosse, at that time, promised a prize for the best thumb-nail box to be displayed at the Christmas party in December of 1952. Thirteen boxes competed. Francine Saruwatari won first, Jess and Stella Wait second, Eula and John Short third, and Alice Bonner fourth. Mrs. Dorothy Craig, vice-president of the American Federation of Mineralogical Societies and also senior vice-president of the California Federation, with the help of Russell Filer, did us the honor of judging. Each box was judged on the following percentage: labeling 5%, attractiveness 20%, variety 25%, quality 25%, and beauty 25%. Mr. Dosse as usual provided prizes in a big way. He brought not one prize as he had promised, but a tray containing 50 beautiful thumb-nail crystal specimens. After the first four highest prize winners had selected four specimens each from the tray, the others who entered boxes were called up in turn and allowed to select crystals. Everyone who entered a box received not just one but three or four beautiful specimens until the tray was empty. Mr. Dosse truly fulfilled his promise to give a prize for the best box. After the program and judging, a social hour was enjoyed. There was an exchange of gifts, and Christmas cookies, and candy, and coffee, and chocolate for all.

The regular thumb-nail meeting of the Orange Belt Mineralogical Society was held at the home of Bob and Berta Boyler. John and Eula Short were in charge of the program. They gave a most informative talk on Fluorite, a calcium fluoride, which is extensively employed as a flux in open hearth furnaces. It is also of great importance in making hydrofluoric acid used for etching glass. Fluorite is a fairly common mineral. It is found in England and Switzerland, and in our own United States, where it is mined in Illinois, Kentucky, Colorado, New Mexico, and New York. During their talk, they passed around specimens of fluorite crystals of many different colors and sizes. These crystals were from the collection of Adolph and Vivienne Dosse.

"Ike and Alma Graham Pass Away"

Members of the Orange Belt Mineralogical Society were shocked and grieved at the sudden and tragic death of their president, Isaac V. Graham and his wife, Alma Graham, of 244 Ninth Street, San Bernardino, California. On January ninth, Ike and Alma, the names they liked best to be known by, were on their way for a week-end field trip to the Geode beds out from Desert Center. Seven miles west of Indio, Calif., on Highway 99, their pickup truck collided with a bus. Alma was killed instantly and Ike was taken to the Casito Hospital in Indio, where he passed away the following afternoon without regaining consciousness.

Ike and Alma had been active members of the Orange Belt Mineralogical Society for many years, and had been influential in starting countless numbers of persons both old and young in the hobby of "rock collecting".

The Grahams leave a son, William V., who worked with his father in the garage business, a daughter, Mrs. Elizabeth Maroney in Deming, N. M.; and another daughter, Joanne, living at home.

Dates Set for O.B.M.S. Gem & Mineral Show

The Board of Directors at their regular meeting on January 28th started work on the 7th Annual Gem and Mineral Show. They set the dates of October 24 and 25, 1953, for the big event. Jess Wait, 1660 Oxford Street, Riverside, California, was elected chairman of the show. Mr. Wait requested that all gem and mineral societies mark these dates on their calendars in order that there be no conflicts. Mr. Wait also extended a hearty invitation to all to attend the coming show.

George Tyler Elected President of O.B.M.S.

George Tyler of Redlands was elected president of the Orange Belt Mineralogical Society to fill the vacancy caused by the death of "Ike" Graham, the late president of the Society. Mr. Tyler was elected by secret ballot by the Board of Directors at their regular Board meeting, January 28.

Mary Lue Tyler was appointed to fill the office of treasurer for the remainder of the year, which became vacant when Mr. Tyler accepted the presidency.

Ray Scherzinger
Corresponding Secretary
6991 Valley Way,
Riverside, Calif.

Mineralogical Society of Southern California, Inc. (Pasadena, California)

Don Emerson of the California Institute of Technology was guest speaker at the January meeting of the Mineralogical Society of Southern California at Pasadena. Mr. Emerson gave a most interesting and informative talk on his experiences while serving as an assistant to a Caltech glacier research party working on the Saskatchewan Glacier in Canada and the Garnet Peak Glacier in the Wind River Mountains of Wyoming during this last summer. The talk was accompanied by many beautiful colored slides taken by Mr. Emerson.

February Meeting

Colored slides were shown on the screen as Worthen Jackson of Fremont, Utah, took members of the Mineralogical Society of Southern California on two fascinating journeys through some little known areas of Utah's fabulous Wayne Wonderland. Members first traveled

through beautiful Capital Reef National Monument then north to Cathedral Valley where they viewed many of the hundreds of spiral castles which rise from 300 to 800 feet above the sandy desert floor. The second journey took the travelers to fantastic Gobblin Valley for a view of the many hundreds of grotesque stone figures for which the valley was named. Here visitors were introduced to such characters as Mickey Mouse, Donald Duck, Mary's Little Lamb and numerous others. Between trips members were entertained by Worthen's brother, Perry who accompanied himself on the guitar as he sang several of his own western compositions.

Mrs. Guilford Dudley
publicity chairman
260 Alpine
Pasadena, California

Los Angeles Mineralogical Society (Los Angeles, California)

The January meeting of the Los Angeles Mineralogical Society was held in the Premiere Cafeteria, Los Angeles, California. Dr. P. A. Foster gave a talk on "Copper Minerals" illustrated by kodachrome slides. Many rare forms of copper were shown. Dr. Foster also had an exhibit of copper minerals.

Mrs. L. Thomas, secretary

Brawley Gem and Mineral Society (Brawley, Calif.)

The Brawley Gem and Mineral Society's Third Annual Rock Show will be held in beautiful Plaza Park, in downtown Brawley, on May 1st, 2nd and 3rd. This year's show is a triple-treat event with the display of semi-precious stones, rock trading and, on the final day, a guided rock hunt in Old Mexico near the interesting and colorful city of Mexicali. The petrified wood, wonder stone and goethite crystals of this area are unlike those found in the States, which promises to lure Rockhounds from all over the West.

Roy Rand, local Jeweler and past President of the Mineral Society said that amateurs, dealers or any interested persons will be welcome at the show which is to be in the patio of Brawley's Municipal Building and is a departure from previous indoor shows.

Nearly 500 persons attended the 1952 display, and Rand predicted that this 1953 event should attract even more because amateurs will have an opportunity to trade stones and because arrangements have been made with the Mexican Government for the rock hunt in Baja, California, Republic of Mexico.

Mineral & Gem Society of Castro Valley

The January meeting of the Mineral & Gem Society of Castro Valley was unusual and thoroughly enjoyed by a large group of enthusiastic hobbyists.

Mr. Frank J. Wilcox of Oakland, California, talked on the subject of cutting and polishing opals and crystal materials, emphasizing their points of similarity as well as their differences, Mr. Wilcox set up his faceting equipment, explaining the need for the various kinds of laps, as well as the different polishing mediums. Incidentally Mr. Wilcox mentioned that he polishes jade on a diamond impregnated tin lap. This may be a more expensive process than most hobbyists would care to undertake but if a high polish on jade is your heart's desire, this could be the answer. If you've seen Mr. Wilcox's jade you'll know that the polish is *ne plus ultra.*

The peak of the evening however turned out to be the lesson in opal polishing. Mr. Wilcox came prepared with 125 pre-dopped Australian opals, and a similar number of 1x12x1¼" sticks to which was cemented a strip of 100 grit wet or dry silicon carbide paper; a similar set of sticks with 320 grit paper; a similar set with 600 grit; and another set with leather! He also provided a jar of Linde A powder for use with the leather polishing strips. Armed with this array, Mr. Wilcox then demonstrated how to grind the edges of the opal to locate the fire layer; how to shape the stone; and remove the matrix; and then with what seemed like miraculously little effort, how to sand and polish the specimen into a beautiful little gem. The supplies were then distributed to the audience and all who wished were invited to try their hand at creating a gem opal for themselves. Of those present, a goodly number had never before cut a stone of any kind, and the results were astonishingly delightful.

It was conceded by all that a meeting of this sort set a standard of excellence that will be hard to surpass, and certainly will remain one of the highlights of the year.

J. H. Engbeck
San Leandro, Calif.

Glendale, California, Lapidary & Gem Society 6th Annual Exhibition May 16 and 17, 1953 Glendale Civic Auditorium

This year's free admission event tries to make the Glendale Lapidary Show the leader in the nation. Ten thousand people were thrilled by last year's two day display, which was not a cold impersonal, academic affair, but a unique *rockhound festival.* The visitors felt at home through the spirit of friendliness and helpfulness extended by the host society.

There was something interesting for everyone, young students, who were making their first visit, and old timers alike.

Dan White, the genial founder of the Glendale Society is responsible for the well lighted showcases which he designed himself. There

is going to be over 50 showcases this year, all owned by the Society and each member is going to do his utmost to fill them with his best bragging pieces to make hungry rockhounds mouths water. There are going to be artistic desert flowers and driftwood displays between the different showcases on card tables to make no one forget that the blue sky of the California desert and mountains and seashore is begging the visitors to follow in the footsteps of the displayers.

Past president Orma Foote was the principal orginator of this idea, which brought us many favorable comments every year. Tales of past field trips are going to be swapped and new ones are going to be planned.

The great ballroom of the Civic Auditorium makes it possible to avoid crowding and pushing. Chairs are provided for the tired ones to get a rest and leave them to think what they are going to inspect next, the rainbow colors of the fluorescent display or to stock up lapidary supplies or jewelry from one of the dozens of commercial displayers. These displayers are arranged along the sides of the auditorium to demonstrate the newest of lapidary machinery or to offer a special rare mineral specimen from the Belgian Congo. Mrs. Erna Clark from Redlands, Calif., will show a new edition of last year's Dame Nature's best preserved food which has everything from an enticing T-bone steak (petrified wood) to a piece of mince pie (jasper); this display, arranged on a large dinner table, is going to provide lots of fun.

Dr. Louis Rossi Bertolli is going to demonstrate the 10 different stages to form a cabochon or a heart. Grant Ostergard will display beautiful mineral and crystal specimens from explorations in Old Mexico such as orange wulfemite and fragile selenite crystals. Hardrock miners of the Virgin Valley in Nevada will display dazzling opals. Gene Neuschwander, the president, makes lovely opal jewelry. To speak of jewelry, nobody wants to miss Willy Peterson-Fagerstain's elegant silver creations, which won national fame. There are going to be gold displays, rare seashells, petrified nautilus and agatized tree section from Wyoming and Utah. Special cases with Horse Canyon, Redondo Beach agate and Nipomo sagenite (all from California and easy driving distance from Los Angeles).

One displayer gives this list of faceted gems to be displayed both in the rough and finished stages (Andalusite, Apatite, Benitoite, Chrysoberyl, Danburite, Epidote, Kunzite, Kyanite, Peridot, Phenacite, Scapolite, Scheelite, Sphalerite, Spodumene, and Golden Topaz).

At this early date the preparations are still going on to make this show an unforgetable one; but I nearly forgot, the one stone nobody is going to overlook; the rare mystery 1151 caret crimson Ruby in the rough, which Los Angeles jeweler, Harry Kazanjian, brought home after a 40,000 miles (a 4½ month trip) around the world, which he is going to lend us for the first showing in the U.S.A.

Last year we had the pleasure to display as the first society the $250,000 Lincoln in Sapphire (which LIFE MAGAZINE of Feb. 9th 1953, reproduced in color) and which is owned by the Kazanjian Brothers, Harry and James. The efforts of all the members to work as a team for the show, increasing publicity in the magazines, daily papers, streetcars and busses, television and radio, make our shows at Glendale a success.

It is hard work to put on a show, but it is worthwhile in the satisfaction of a job well done. There is a cordial invitation to each and everyone of you to come to see us. Nobody can afford to miss the great *Glendale Gem Festival*, May 16 (9 A.M. to 9 P.M.) and May 17 (9 A.M. to 6 P.M.)

Walter Kohn (Publicity)
2241 Cambridge Street,
Los Angeles 6, Calif.

Los Angeles Lapidary Society

At the January meeting of the Los Angeles Society Archie Meiklejohn and Charles Maples were elected as delegates to the Lapidary Association. Clarence Chittenden was elected as an alternate delegate.

Three Planning Trustees for the L.A.L.S. were elected. They were Dick Mitchell, Stephen Stein, and Ted Schroeder.

A very informative program on faceting followed the election. The principal speakers were Archie Meiklejohn, Chas. Maples, and Dick Mitchell.

At the February meeting Dr. Tinell of the staff of U.C.L.A. showed pictures of and talked about the origination of crystalization.

We have had numerous requests for copies of our Constitution and By-Laws by groups from different parts of the country, starting new lapidary societies. Some as far away as Pittsburgh, Pa. We are happy to be helpful in the starting of these new societies.

Mary Humble
Corresponding Secretary

Big Year Ahead for Walla Walla Club

In Walla Walla, Washington, the Marcus Whitman Gem & Mineral Society started the new year out with new officers and a new Yearbook. Their January meeting was attended by 120 members who came to hear a lecture on meteorites. Mr. and Mrs. Ralph Johnson of the Brown Foundation exhibited a large collection of meteorites and supported the exhibit with a slide lecture. To explain the source of meteorites the Johnsons included an illustrated talk on astronomy.

According to the Club's 1953 Yearbook, each month has an interesting program plus many field trips throughout the mild-weather months. Programs include lectures, movies, ex-

change meetings with other clubs, a special night for junior members and even a birthday party to commemorate their three years of life.

An experiment in "open house" was announced and explained at the January meeting. Many members have set definite nights when other club members are invited to visit their homes to see their whole collection and their lapidary equipment.

New officers include Al Estling, President; Mrs. Westcoatt, Vice-President; Y. P. Winans, Secretary; and Mrs. Henry Ewing, Treasurer.

G. W. Weber
1320 Portland Avenue,
Walla Walla, Washington

Long Beach Mineral & Gem Society

On January 14, 1953, Long Beach Mineral & Gem Society convened for their first meeting of the New Year with a new set of officers in charge, i.e., Dr. Gerould Smith, President; James (Jim) Greene, Vice-President; Carl Brenner, Secretary; Harvey Hawkins, Treasurer.

Directors: Ralph Paul, Joseph Grimm, Milo Erdal.

Speakers was Mr. L. C. Musselman, who came down from Pasadena to describe his experiences on numerous trips into the Arctic and Antarctic Regions.

His first experience came shortly after leaving University of Wisconsin in 1933 when he secured a position as 'Bull Cook' with a mining exploration company in Alaska. He found out what a 'Bull Cook' was after he arrived on the scene,serving as cook's helper and general utility for eight months, then it was discovered he had some knowledge of chemistry, assaying, etc., and he was sent on exploratory trips. This group found anthracite coal and oil shale and the discovery of the coal changed the heating habits of a large segment of the population in that part of Alaska. He later became acquainted with an Englishman who was searching for 'white-eyed dogs' — the true husky strain which is not subject to snow blindness as are brown eyed dogs — for a planned expedition to the Antarctic. He was invited to join the expedition, which he subsequently did. The Antarctic Continent covers an area as large as United States, Canada and Mexico and would extend eight hundred miles into the Pacific Ocean and five hundred miles into the Atlantic. The mountain ranges are very rugged and have altitudes to 22,000 feet. The ice cap was determined to be 23,400' thick at a location 2300 miles South of Cape Horn. The average temperature for a period of 2½ years was 66° BELOW Zero. Minerals located on various expeditions were tremendous deposits of iron—which incidentally made radio reception difficult—deposits of uranium and oil shale. The origin of the snow in Antarctica is somewhat of a mystery as the air does not support enough moisture to cause snow; furthermore, it is too cold to support bacterial, so, they do not have colds, fevers or other diseases. The doctor had so little to do he was assigned duties as a carpenter. They found three active volcanoes in Antarctic; also. Mr. Musselman brought back several specimens of fossilized fern and fish, now in the Smithsonian Institute—indicating that the climatic conditions there were not always the same as now. In speaking of animal life he mentioned particularly the penguins of which there are three varieties. The largest is the Emperor—which when grown will weigh about 100-lbs.; then the King—somewhat smaller but quite rare and the Adelaide, the smallest and most numerous type. Penguin eggs are quite delicious, the only drawback being that the yolks are blue instead of yellow. Upon returning to the United States after one expedition, which had lasted two and one-half years, expecting to draw a full quota of pay from the Army, under whose auspices they had started out, it was found that the expedition had been transferred to a different governmental department and that all hands were on a $1.00 per year basis and paid off accordingly. Another expedition, just before the War and which ended after W-War II had begun, under British auspices, ended up by locating and destroying the base from which the German GRAF SPEE was operating. We found Mr. Musselman's narrative so interesting that it was not realized that two hours had gone by in a hurry—but all good things must end some time and we are hoping to have him with us again to take up where he had to leave off.

DON'T FORGET — LONG BEACH IN AUGUST FOR THE BIGGEST & BEST SHOW.

E. B. Langston
3460 Tulane Avenue
Long Beach 8, Calif.

Humboldt Gem and Mineral Society (Eureka, California)

The Humboldt Gem and Mineral Society met December 19th. Election of officers for 1953 was held. George Morgan, president; Max Ross, vice-president Olive Davis, secretary-treasurer; Amelia Alward, librarian.

Mrs. G. Chapman wrapped slabs and all the junior members took turns drawing for them. This was a surprise and should go well towards interesting most young members of the society.

A. W. Porter was reported ill at Albany, Oregon, while on a field trip, but is now at home and around once more.

Again display cases were discussed. It is hoped something will be done. The meeting closed with a Christmas grab bag and refreshments.

January (1953) Meeting

The Humboldt Gem and Mineral Society met January 23rd at the Eureka Junior High School. Committee members were appointed for the year by our new president, George Morgan. Plans were discussed about where to place the trophy.

E. Hutchison and G. Morgan gave an account of their trip to Monterey, Calif., for jade. A. W. Porter gave an account of his trip to Albany, Oregon, and Ogden Scoville reported his trip to Mexico.

All members of our society are asked to bring an extra specially good specimen to our next meeting to be put on display at the Eureka Museum.

Our new president, George Morgan, gave a talk on the history of a silver pitcher made years ago in Nevada. Refreshments were served as usual.

Olive Davis, Secretary

Sacramento Mineral Society

At the January 23rd meeting of the Sacramento Mineral Society the following officers for 1953 were elected.

President ..... George Winslow
Vice-President ..... Raulin Silveira
Recording Secretary ..... Genevieve Colony
Financial Secretary ..... Ernest Pook
Treasurer ..... Luther Ford
Librarian ..... Laura Krueger
Director ..... Elmer Lester

Past-President John Baierlein now becomes Federation Director.

Regular meetings of the Sacramento Mineral Society are held on the 4th Friday of each month in the Turn Verein Hall, 3349 J St., Sacramento at 7:30 P.M. Visitors are always welcome. Mailing address of the Society is P.O. Box 1451, Sacramento, California.

Paul H. Steele
Chairman, Publicity Committee
Box 1451
Sacramento, California

San Francisco Micromount Society

For the third meeting of this newly organized group, several of the members visited the laboratory of G. H. Halden at his home in Millbrae, California. Mr. Halden showed those fortunate enough to be present his very fine and outstanding collection of minerals, many of which were greatly admired. In return for this fine showing, George H. Needham and Robert Lobel exhibited some of their choicest micromounts under wide field binocular microscopes. Mr. Needham also showed 100 "2x2" color slides of microminerals, rock sections and chemical crystals on the screen. The meeting adjourned at midnight.

Robert Lobel
105 Hillside Boulevard,
Daly City, California

JAMES L. KRAFT

(Obituary Notice)

James Lewis Kraft, 78, America's most noted jade collector, died, Feb. 16, 1953, in Wesley Memorial Hospital, after a brief illness. He lived at 17 Canterbury Ct., Wilmette, Ill.

Mr. Kraft, was the founder and chairman emeritus of the Kraft Foods Co. of Chicago.

Mr. Kraft, in 1940 took up the hobby of grinding and polishing minerals, and became one of the country's best known amateur lapidaries, specializing in jade.

O. B. BROWN

(Obituary Notice)

O. B. Brown, of Kenmore, Wash., a mining engineer and former wholesale furniture store owner, died rather suddenly the first of this year at the age of 84 years. Born in Munsonville, New Hampshire in 1869, he worked in a furniture factory in Keene, New Hampshire, at the age of twenty-one. Four years later he moved to Chicago where he opened a wholesale furniture store. While in Chicago he studied mining engineering nights and obtained his degree at the University of Chicago. His mining work took him all over the world, but after six years he became resident engineer for coal mines in Bellingham, Washington. Mr. Brown was most active in the formation of several mineral clubs.

After moving to Wenatchee, Washington, he became the district's consulting engineer and assayer. His favorable reports on such mines as the Azurite and the Holden Mines in Washington resulted in these mines being large producers and having large payrolls. The Holden mine has produced over $30,000,000.

With his wife he shared in the National Good Neighbor Award. His file of pictures, mostly photographs he made himself, is both a history and a narrative of the development of the Northwest from the paddle wheel boats on the Columbia to the completion of Grand Coulee Dam. He and his wife celebrated their sixtieth wedding anniversary last year. He was cited by the metropolitan papers of Washington for outstanding service to the State in natural resource development and his reports as a member of the State Geological Survey are still standard reference.

On a trip to Wenatchee he had an abdominal attack. Mr. Brown was operated upon but failed to recover, passing on January 4.

Surviving Mr. Brown are two sons, Lloyd O. of Milwaukee, Oregon, and H. Douglas Brown of Shell Beach, California. Mrs. Brown died last year.

LOOKING BACK - - - -

Twenty-Five Years Ago in ROCKS AND MINERALS
March, 1928, Issue

The Gem Department. This interesting feature which was to run for many months and conducted by Gilbert Hart, made its first appearance in this issue—pp. 14-15.

Notes and News of Minerals of the Rarer Elements, by O. Ivan Lee pp. 16-17. The minerals of scandium were featured.

The radio-active minerals of Australia, by M. Mawby. p. 17. Minerals occurring at Mt. Painter and Radium Hill were described briefly.

Paleontology Department, conducted by Benjamin T. Diamond, pp. 18-19. In this issue, sponges were described.

A unique Mineral Locality in Oregon, by Dr. Henry C. Dake. p. 19. Opal occurrence in the Crooked River Canyon.

Crystallography, conducted by Gilbert Hart, pp. 20-21. This was a new feature which we hoped would go over big but unfortunately it did not and so ran for only a few issues.

Mineral localities of Maine, by Charles F. Marble, p. 21. The Hartford chrysoberyl prospect was described.

The Beginner's Cabinet, (a department for young collectors), conducted by Ilsien Nathalie Gaylord, pp. 22-26.

A Rock Toter Renews!

Editor R & M:

Attached find check amounting to three dollars to cover renewal of subscription for ROCKS AND MINERALS.

Since I am known locally as *THE ROCK TOTER,* and having spent a great many years in collecting and studying the various mineral and geological formations of the southern Appalachians, you can readily understand *why* I would not like to miss a single copy of ROCKS AND MINERALS.

R. C. Lee
14 N. Park Drive,
Greenville, S. C.

Feb. 18, 1953.

Two Sleepy Heads!

Editor R&M:

"I have had the great pleasure of reading 2 issues of your splendid magazine ROCKS AND MINERALS. It is by far the best publication of its kind I have read to date. To the regret of my dear wife, yours truly tried to read all of the first copy in one night (including the ads). The ultimate result: Two very sleepy members of my household next morning. But it was well worth it."

K. Einar Whalen
229 St. Johns Place,
Brooklyn 17, N. Y.

Feb. 25, 1953

Another Pleased Subscriber!

It gives me great pleasure to enclose check for renewal of my subscription to your magazine, ROCKS AND MINERALS.

In my opinion it is the finest magazine of its kind.

Harold M. Curtis, Jr.
108 Ash Street,
Dec. 29, 1952 Stoughton, Massachusetts

40,000-Mile Trek Leads to Big Ruby

Harry Kazanjian, Los Angeles, Calif., gem dealer, some few months ago completed a 40,000 mile trek around the world, in search of precious stones, according to an interesting news item in the *Los Angeles Times* (Nov. 24, 1952). The largest and finest specimen, an 1151 caret gem ruby, was found—not in the fabled Orient, nor in the famous sapphire mines of Australia, but in England. The story does not state where this huge ruby was found but—it might have been in some gem dealers establishment. This large ruby is of a deep crimson color, faintly translucent and surprisingly free of flaws.

The Kazanjian Bros. (Harry & James) also own the largest uncut sapphires in the world, the largest cut star sapphire, and the Lincoln sapphire (head of Abraham Lincoln carved from the gem stone).

Final plans have not been completed for its deposition. The present thinking of the Kazanjians is that they may polish one side and have the other side carved, so as to keep the stone intact as an imperishable object of art in a class with the Star of Queenland and the Lincoln sapphire.

If Faulty—See A Doctor!

Editor R&M:

I sure have been getting a kick out of our fellow readers who have really answered "those who always find something to swank about." Anybody who finds fault with our magazine should go to see a doctor. I have been reading R&M for 16 years and think it is the greatest. Only regret is that I have to wait two months for it.

Sol Shalevetz
Jan. 26, 1953 Los Angeles, Calif.

Publications Recently Received

Physical Gemmology, by Sir James Walton.

In his preface to this new addition to gemological literature, Sir James Walton states that his aim is to provide in one volume a detailed account of the scientific principles upon which the subject of mineralogy is based, to divest it as far as possible of all mathematical considerations, to present it in the simplest non-technical language and to develop the subject methodically step by step so that it may be of easy understanding even to those devoid of all scientific knowledge. This is a large order, and the author has done remarkably well in providing easy reading through much of the book, but riffling through the first few pages of the book, the reader is quickly struck by those selfsame mathematical symbols which the author professes to avoid. Further on, page 15 to be exact, the entire side is devoted to a discussion of a mathematical progression called the Balmer Series whose adequate appreciation would be brow-wrinkling for a mathematics major not to speak of those devoid of all scientific knowledge Thus the book in question is far being easily understood in all its parts, rather it is a curious mixture of the elementary with the complex, a composite so often characteristic of authors whose high personal levels of technical knowledge lead them unwittingly into abstruse discussions whose meanings are crystal-clear to them but alas—not always to the reader they aspire to inform.

In regard to subject matter, the book is divided into eight chapters: 1—Atoms and Molecules, 2—Crystallography, 3—Geology, 4—Microscopic Characters of Minerals, 5—Optical Characters of Minerals, 6—Colour, 7—General Physical Properties of Minerals, and finally, 8—The Fashioning of Minerals for Gems. The vast majority of the material given is currently available in other books and in more detail. However chapters 1, 4, and 6, gather together material not ordinarily available to the gemologist and for this reason make the book a worthwhile addition to the library. The value of these chapters rests primarily in the fact that they treat of relatively recent discoveries and techniques not previously injected into popular books on gemology or mineralogy. As most thorough readers of texts on precious stones, gemology, and allied subjects no doubt realize, the vast majority of books on these subjects are re-hashes of several works, usually Bauer's magnificent "Edelsteinkunde", Dana's mineralogies, and more lately, the "Gemstones" series by G. F. Herbert Smith. In this respect Sir James steals a march in providing a rather fine chapter on the latest theories concerning atomic structure and its larger manifestation—crystal structure. Chapter 6 also relates color to these same theories. Chapter 4, The Microscopic Character of Minerals, is unfortunately already overshadowed if not eclipsed, by the new important work of Dr. Edw. J. Gubelin of Switzerland, "Inclusions As A Means Of Gemstone Identifications", now for sale by the Gemological Institute Of America.

Aside from the chapters referred to, the others leave much to be desired. The chapter on crystallography is the longest in the book but like so many others dealing with this complex subject, is difficult to understand unless the reader is already conversant with the fundamentals. The brief discussion of the Miller Indices will do nothing to dispel the fog normally attending the beginner's first look at the subject. Since its direct value to gemology is questionable, the chapter on geology could probably have been conveniently omitted from the book to make room for something more worthwhile. The chapter on the optical characters of minerals is a confusing hodge-podge of theories and phenomena and withal never tied in firmly with the practice of gemology. In contrast chapter 7 on the general physical properties is both informative and practical. Chapter 8, the fashioning of gems, is pitifully short and barely scratches a subject of intense interest to the practical man. It is here in the fashioning of gems that all the properties so laboriously described before culminate in the final wedding of art and theory, yet this most important conjunction is dismissed with only cursory treatment.

In regard to the "physical quality" of "Physical Gemmology" the paper and the binding indicate that perhaps the wartime restrictions imposed upon English printers and binders have been lifted. The paper is matte finished, well impressed, and the result is easy on the eyes. Unfortunately, the line crystal drawings are among the worst to appear in a long time. They are strongly reminiscent of the crude drawings gracing "Die Mineralien" by Rudolf Zimmermann (1904). On page 62 of Physical Gemmology is a rather ludicrous example (fig. 94) in which the artist, if he can be called that, omitted an essential line. Page 63 (fig. 96) shows a hexoctahedron some of whose back faces defy all ordinary crystal laws by appearing in front. Pages 64, 65, 68, 69, 72, 73, 75, 76 and others, show serious errors in draftsmanship indicating that the editing of the illustrations did not receive nearly the care and attention that the manuscript obviously did.

The book is published by Sir Isaac Pitman & Sons LTD. London, England, at 30 shillings (appr. $4.50) or may be ordered from Malcolm Gardner, 12 Earnshaw Street, St. Giles, London W.C. 2, England. Hard cloth covers, 304 pp., 400 line drawings and one insert chart.

J. S.

MINERALS: A KEY TO SOVIET POWER

An authority on mineral economics has just completed a study of the mineral resources of the Soviet Union.

Checking published Soviet data on mining, industry and geology against known experience in the United States and elsewhere, Dr. Demitri B. Shimkin of the Russian Research Center at Harvard has tried to estimate the trend of Russian development. His findings are published as "Minerals: A Key to Soviet Power" by the Harvard University Press.

Dr. Shimkin summarizes his findings this way:

"Despite serious setbacks caused by losses during World War II, Russia's mining industries have undergone tremendous expansion over the past quarter century. This has been particularly true for the production of nonferrous metals and fertilizer basics. Furthermore, the last decade has witnessed a pronounced eastward shift in production, and considerable maturation in mining and refining technology.

"Nevertheless, the Soviets have been unable to meet their own ambitious goals, intended to permit a breakneck pace of industrialization and economic expansion. The chronic shortage of minerals resulting from this failure has had numerous consequences. The U.S.S.R. has shifted from a net mineral-exporting to a mineral-importing balance of foreign trade. It has sacrificed the healthy g r o w t h of housing, agriculture, the transportation network, and light industry to the overriding needs of heavy manufacturing. It has accepted serious waste from the widespread use of substitutes that have been frequently substandard or short-lived.

"In its search for military security, the Soviet Union has also striven to achieve self-sufficiency, through the development of domestic production and through assiduous stockpiling. These efforts have been but partially successful. During World War II, the enormous supplies sent by the United States, Canada and the United Kingdom were indispensable for Soviet survival. Today, although peacetime internal needs for most minerals can probably be met from domestic output, the requirements of the satellites and, above all, the potential demands of a full-scale, prolonged war raise critical problems, especially in regard to nonferrous metals, petroleum, and sulfur minerals.

"The known mineral reserves of the Soviet Union are extremely large. In most ferrous metals and nonmetallics, and in fuel, they are adequate or abundant to permit self-sufficiency for twenty years or more of intensive economic development. On the other hand, the reserves of most nonferrous metals and other minerals such as diamonds and tungsten range from doubtful adequacy to negligible size. But the situation as presently known reflects primarily the pioneering stage of Soviet prospecting and mining development. Even the preliminary geological reconnaissance that sums up present knowledge of most of the Soviet Union has brought out, beyond question, the great structural diversity and virtually limitless ultimate potentialities of Russia's lands. The wealth of the Urals may well be duplicated in Turkestan and central Siberia."

Dr. Shimkin says, "The general outlines of Russia's mineral position are clear," but in dealing with specific aspects regarding individual minerals, conclusions are "approximations subject to serious error," source materials vary in reliability "from good to guesses," and unprovable assumptions have to be made.

His best estimate of the allocation of minerals among Soviet industries is this:

"Within the limits of available information, it appears that, over the past fifteen years, the following economic sectors have received highly preferential treatment in the allocation of minerals: the steel industry, especially machine-tool manufacturing; electrical equipment, rubber, and aviation; and agriculture, particularly the production of fibers and sugar. The railroads and electric-power production seem to have held middle ranks in priority. Proportionally, the railroads have received large quantities of ferrous metals and coal, but their allocation of petroleum, copper, and, since the war, tin have been rigidly restrained. An exceptionally large part of Soviet coal consumption has gone to electric-power production, but the use of petroleum for this purpose has been restricted since the mid-1930s. The economic sectors of low priority have apparently included wire but not radio communications; the petroleum industry, starved for steel, sulfuric acid, and, before the war, barite; paints and pigments, allotted substantial quantities of zinc and china clay, but little or no cobalt, lead, talc and titanium; and the cellulose, paper, textile, glass and food-processing industries. Domestic consumption has, of course, fared worst of all."

As to the present and possible future mineral wealth of the Soviet Union, Dr. Shimkin says:

"In general, the mineral wealth of the Soviet Union, as presently known or inferred, approximates that of the United States. Both countries have enormous reserves of coal and lignite, magnesium salts, and a series of nonmetallic minerals; bromine, fire clay, gypsum, phosphate rock, and low-grade sulfuric basics. The known copper reserves are approximately equal, while neither has measurable resources of diamonds. Soviet reserves are much greater than those of the continental United States and Alaska for antimony, asbestos, magnesite, manganese ore, mercury, mica, nickel, possibly petroleum, platinum, potash, natural sodium salts (mirabilite), and tin. On the other hand, the American potentials considerably exceed those known for the U.S.S.R. in bauxite, borax, cadmium, cobalt, fluorspar, helium, iron ore, lead, dolomite, molybdenum, natural gas, titanium (including titano- magnetites), tungsten, vanadium and zinc.

"The major differences between the Soviet Union and the United States in regard to mineral self-sufficiency are therefore not those of more or less ascertained physical endowment but rather of the probabilities of new discoveries, of the potential mineral-consumption requirements, and of the politico-economic orientation. Thus, while the finding of numerous new and rich deposits is very likely in the Soviet Union (because much of it is as yet unexplored geologically), comparable radical changes are improbable in the United States, with the notable exception of Alaska. Again, American mineral-consumption requirements between 1950 and 1970 may be anticipated even by a conservative extrapolation to be 2.5 to 3 times those of the Soviet Union for the same period. Finally, and above all, the Soviet Union has attempted, and will presumably continue to attempt, to gain self-sufficiency without regard to production costs."

Dr. Shimkin, who has been at Harvard since 1948, served on the War Department General Staff during World War II and has taught at the National War College. Born in Russia, he emigrated to the United States as a child. He was trained as an anthropologist at the University of California, where he received the Ph.D. degree in 1939, and did research among the Wind River Shoshone Indians of Wyoming before entering Russian studies for the Military Intelligence Service. He is a graduate of the Army's Command and General Staff School.

Schrader's New Catalog

Schrader Instrument Company, Independence, Iowa, recently released their catalog No. 53. This is a 64-page illustrated catalog of materials, tools and equipment for working metal, wood, and plastic. Among the items featured are burrs, drills, cutters, grinding wheels, mandrels, sanders etc., etc.

A 26-page supplement featuring other material as pliers, files, engraving tools, dividers and calipers etc. etc. is also included. This catalog has been issued for the home craftsman and hobbyist. Send for your copy today!

Rockhound Buyers Guide

THE LAPIDARY JOURNAL, Palm Desert, Cal. have recently issued a huge 160-page Rockhound Buyers Guide which tells where—wh —what—how (an encyclopedia for the rock hobbyist). The Guide features many mine localities of the U.S., mineral and gem collections in North America, publications and book catering to the rockhounding hobby, list American gem and mineral clubs, and in addition is chuck full of dealers ads. Nothing like this has ever been issued before. Edited and compiled by Lelande Quick (Editor of THE LAPIDARY JOURNAL).

This most interesting 160-page Guide sells for only $1.25 (plus 10c for postage). Send for a copy today!